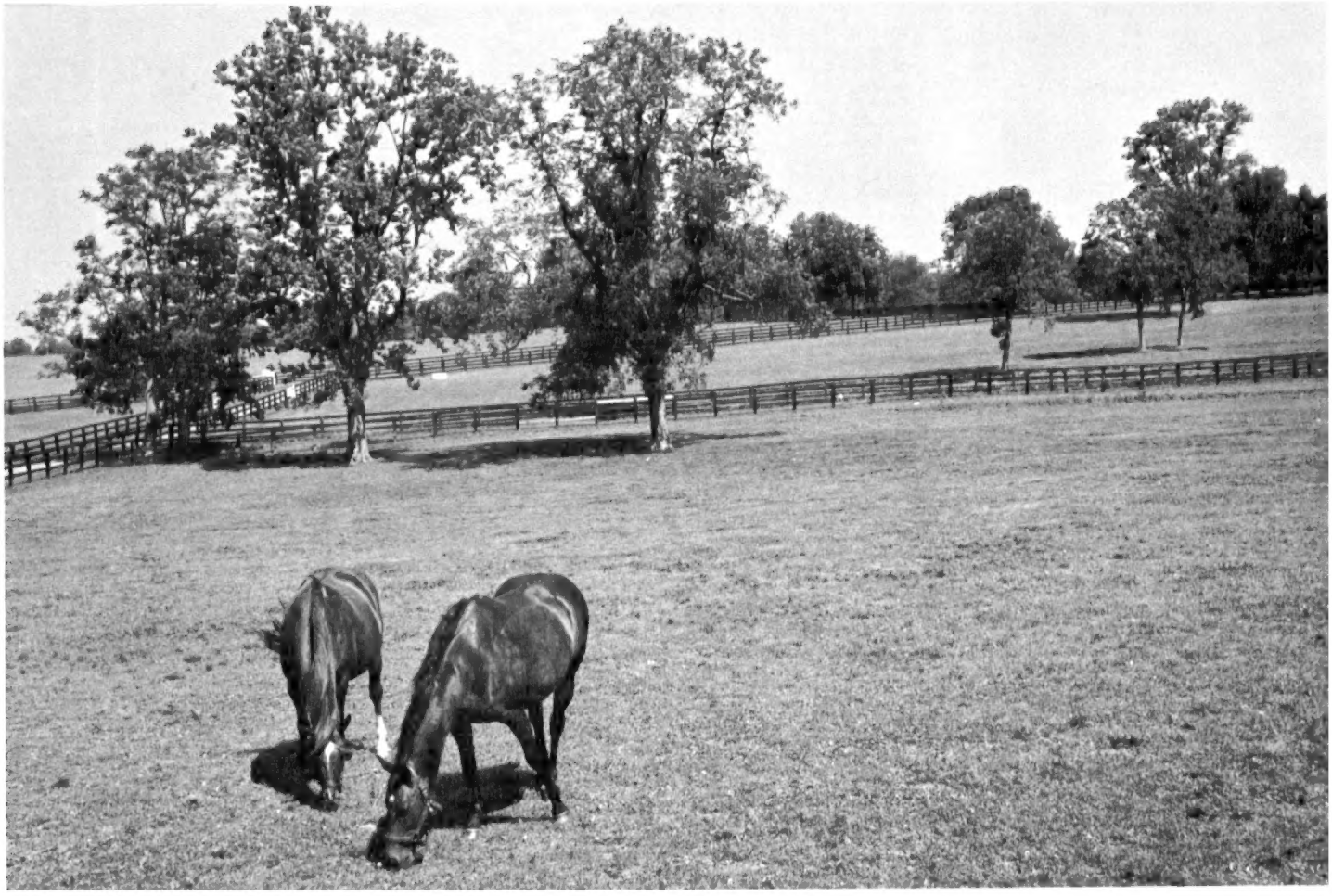
SOIL SURVEY

Fayette County, Kentucky



UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
KENTUCKY AGRICULTURAL EXPERIMENT STATION

Major fieldwork for this soil survey was done in the period 1962 to 1964. Soil names and descriptions were approved in 1965. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1965. This survey was made cooperatively by the Soil Conservation Service and the Kentucky Agricultural Experiment Station; it is part of the technical assistance furnished to the Fayette County Soil Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the suitability of tracts of land for agriculture, industry, or recreation.

Locating Soils

All the soils of Fayette County are shown on the detailed map at the back of this publication. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with numbers shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each kind of soil is described, and also the page for the capability unit in which the soil has been placed.

Individual colored maps showing the relative suitability or limitations of soils for many specific purposes can be developed by using the soil map and information in the text. Interpretations not included in the text can be developed by grouping the soils according to their suitability or limitations for a particular use. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils in the soil descriptions and in the discussions of the capability units.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Wildlife."

Community planners and others concerned with suburban development can read about the soil properties that affect the choice of homesites, industrial sites, schools, and parks in the section "Nonfarm Uses of Soils."

Engineers and builders will find under "Engineering Applications" tables that give engineering properties of the soils in the county and that name soil features that affect engineering practices and structures.

Scientists and others can read about how the soils were formed and how they are classified in the section "Formation, Classification, and Morphology of Soils."

Newcomers in Fayette County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

Cover picture.—Thoroughbred racehorses grazing on Kentucky bluegrass pasture. The soil is Maury silt loam.

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Contents

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EXPLANATION

Series Year and Series Number

Series year and number were dropped from all soil surveys sent to the printer after December 31, 1965. Many surveys, however, were then at such advanced stage of printing that it was not feasible to remove series year and number. Consequently, the last issues bearing series year and number will be as follows:

Series 1957, No. 23, Las Vegas and Eldorado Valleys Area, Nev.
Series 1958, No. 34, Grand Traverse County, Mich.
Series 1959, No. 42, Judith Basin Area, Mont.
Series 1960, No. 31, Elbert County, Colo. (Eastern Part)
Series 1961, No. 42, Camden County, N.J.
Series 1962, No. 13, Chicot County, Ark.
Series 1963, No. 1, Tippah County, Miss.

Series numbers will be consecutive in each series year, up to and including the numbers shown in the foregoing list. The soil survey for Tippah County, Miss., will be the last to have a series year and series number.

SOIL SURVEY OF FAYETTE COUNTY, KENTUCKY

BY RAYMOND P. SIMS, DARWIN G. PRESTON, ALFRED J. RICHARDSON, JOHN H. NEWTON, AND DAN ISGRIG, SOIL CONSERVATION SERVICE, AND ROBERT L. BLEVINS, KENTUCKY AGRICULTURAL EXPERIMENT STATION

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE KENTUCKY AGRICULTURAL EXPERIMENT STATION

FAYETTE COUNTY is in the east-central part of Kentucky (fig. 1) and has an area of approximately 280 square miles, or 179,200 acres.

Fayette County is commonly called the "Heart of the Bluegrass" region of Kentucky. All of the county, except

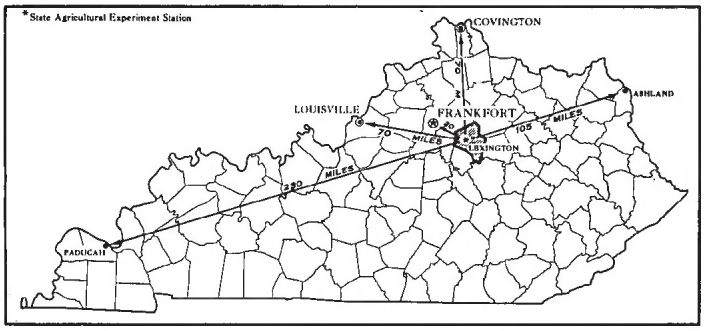

Figure 1.—Location of Fayette County in Kentucky.

for a small area in the southeastern part, is in the Inner Bluegrass physiographic region. The Inner Bluegrass region is gently rolling to undulating and has many tree-shaded pastures. This section of Kentucky is famous for thoroughbred racehorses. The southeastern corner of the county is in the Hills of the Bluegrass physiographic region and has a much steeper, rougher terrain.

Agriculture has been important since the county was first settled. Growing burley tobacco and raising livestock are important farm enterprises. About two-thirds of the farmland is pasture.

The climate is temperate and humid, and there are only short periods of extremely hot or extremely cold temperatures.

Lexington is the county seat. In recent years many industries have moved into Lexington, and it is rapidly becoming an industrial center. Industrial expansion has caused a rapid growth in population, and much land around Lexington has been used for urban development.

How Soils Are Named, Mapped, and Classified

Soil scientists made this survey to learn what kinds of soils are in Fayette County, where they are located, and how they can be used. They went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down to the underlying material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to uniform procedures. To use this survey efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Maury and Loradale, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the natural, undisturbed landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use by man.

Many soil series contain soils that differ in the texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. McAfee silt loam and McAfee silty clay are two soil types in the McAfee series.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, McAfee silt loam, 2 to 6 percent slopes, is one phase of McAfee silt loam, a soil type that has a slope range of 2 to 12 percent.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries

on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this survey was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed and occur as individual areas so small in size that it is not practical to show them separately on the map. Such a mixture of soils is shown as one mapping unit and called a soil complex. Ordinarily, a soil complex is named for the major kinds of soils in it, for example, Urban land-Armour-Maury complex. Also, on most soil maps it is necessary to show areas that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on the soil map like other mapping units, but they are given descriptive names, such as Rock land, and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way that it is readily useful to different groups of readers, among them farmers, managers of woodland, and engineers. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in soil surveys. On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others, and then adjust them according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Fayette County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to

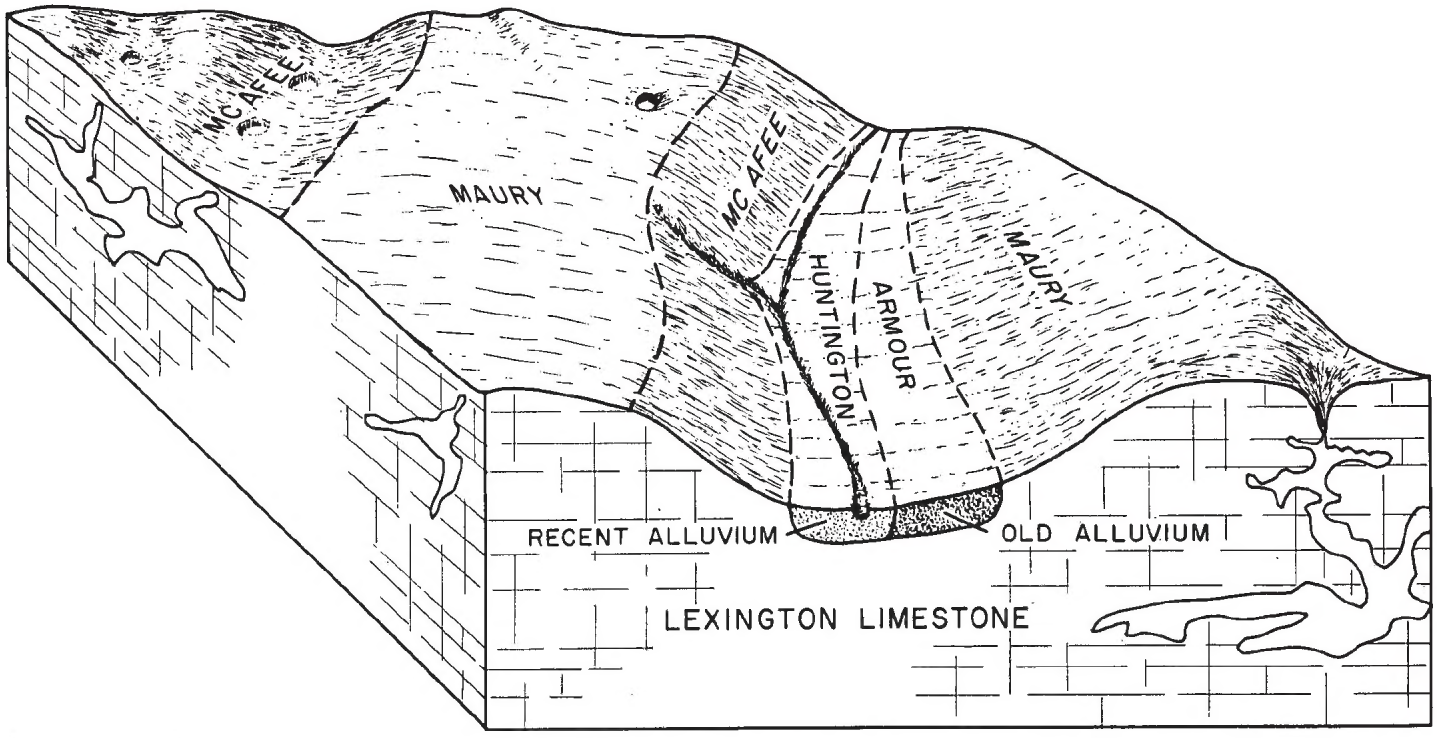

Figure 2.—Relationship of soils to topography and underlying material in association 1. Unshaded areas represent caverns or sinkholes in the limestone bedrock.

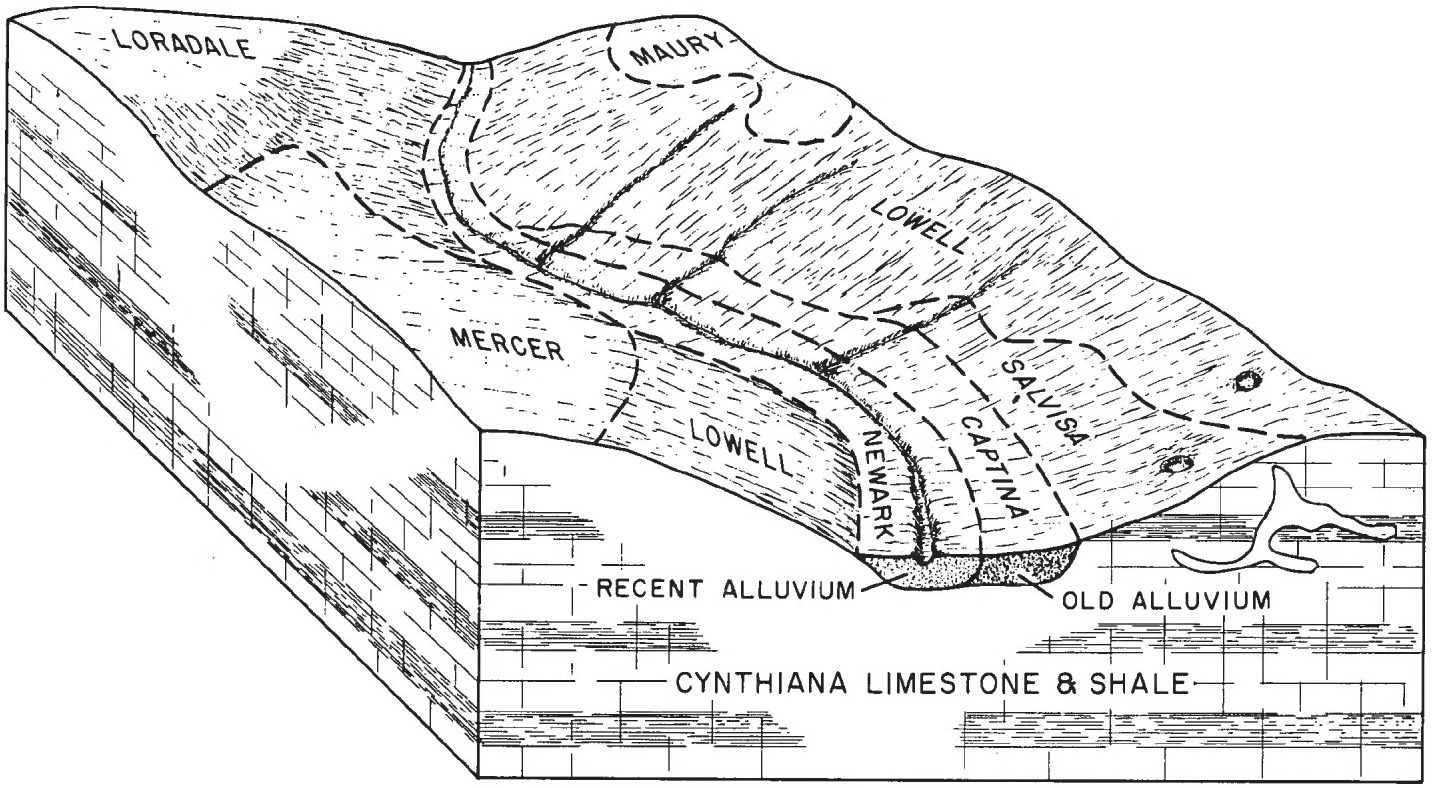

Figure 3.—**Relationship of soils to topography and underlying material in association 2. Unshaded areas represent caverns or sinkholes in the limestone bedrock.**

know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect management.

The five soil associations in Fayette County are described in the following pages.

1. Maury-McAfee Association

Undulating, deep and moderately deep, well-drained soils high in phosphate; on uplands

This soil association consists of undulating ridges and short steeper slopes around sinkholes and drainageways (fig. 2). It occupies about 55 percent of the county. Most of the acreage is in the northern and western parts, but two small areas are in the southeastern part. Caverns and underground drainageways are common. Maury soils make up about 70 percent of the association, McAfee soils 13 percent, and minor soils the rest.

The dominant soils, Maury and McAfee, generally overlie phosphatic limestone. Maury soils are deep, well drained, and fertile. They are on broad ridgetops and on some side slopes. McAfee soils are well drained or somewhat excessively drained and are less than 3 feet deep over bedrock. They occur on steep slopes around drainageways and sinkholes.

The minor soils in this association are Donerail, Fairmount, and Salvisa soils, on uplands; Armour soils, on stream terraces; and Huntington, Lindside, Egam, and Lanton soils, on flood plains.

The farms on this association are generally between 100 and 300 acres in size, but a few are much larger. Most are operated by the owners or by tenants; some small farms are operated by part-time farmers.

The soils in this association are used mainly for producing Kentucky bluegrass pasture, hay, and burley tobacco. Some grain and some silage are grown. Part of the bluegrass crop is managed for the production of seed. Most of the horse farms in this county are on the soils of this association. Raising thoroughbred racehorses, raising beef cattle, and growing burley tobacco are the major farm enterprises.

2. Lowell-Loradale-Mercer Association

Gently sloping, deep and moderately deep, well drained and moderately well drained soils on uplands

This soil association consists of broad, gently sloping ridgetops dissected by many drains (fig. 3). Leading down to the drains are slightly steeper, fairly regular slopes of moderate length. Sinkholes are prominent in places but are not characteristic of the association as a whole.

The soils of this association occupy about 31 percent of the county. They occur in the east-central part and in a small area north of Greendale. About 40 percent of this association consists of Lowell soils, 15 percent of Loradale soils, 14 percent of Mercer soils, and the rest of minor soils.

The dominant soils generally overlie limestone that is interbedded with thin layers of calcareous shale. Lowell and Loradale soils occur both on ridgetops and on somewhat steeper side slopes. Lowell soils are well drained. They have a moderately deep or deep root zone, which is underlain by heavy plastic clay. Loradale soils are well drained and deep. Mercer soils are moderately well drained and have a compact layer about 18 to 26 inches below the surface. They occur mostly on the broadest ridgetops and around the head of drains.

The minor soils in this association are Maury and Salvisa soils, on uplands; Captina and Lawrence soils, on stream terraces; and Newark, Lindside, and Melvin soils, on flood plains.

The farms on this association average about 150 acres in size and are generally operated by the owners or by tenants. Most of this association has been cleared and is used to produce pasture, hay, and cultivated crops. Raising livestock and growing burley tobacco are the major farm enterprises.

3. McAfee-Maury-Braxton Association

Rolling to strongly sloping, moderately deep and deep, well-drained soils high in phosphate; on uplands

This association consists of ridgetops and sloping or strongly sloping hillsides around drains (fig. 4). Karst topography is typical, and sinkholes are common. This association occupies about 8 percent of the county. It is in the extreme western part and in the southeastern part. McAfee soils make up about 45 percent of this association, Maury soils 30 percent, Braxton soils 10 percent, and minor soils 15 percent.

The dominant soils generally overlie phosphatic limestone. McAfee soils are on the steeper slopes. They are well drained or somewhat excessively drained. They are less than 3 feet deep to limestone bedrock, and the limestone crops out in some places. Maury and Braxton soils are deep and well drained. Maury soils are on ridgetops, and Braxton soils are on side slopes.

The minor soils in this association are the Salvisa and Fairmount, on uplands, and the Huntington, Lindside, and Egam, on flood plains.

The farms on this association average about 110 acres in size, and most are operated by the owners. Most of the acreage has been cleared and is used for pasture, hay, and cultivated crops. Soils on ridgetops and on upper slopes are generally suitable for cultivated crops, and shallower soils on hillsides are generally suitable for hay and pasture. Raising livestock and growing burley tobacco are the main farm enterprises.

4. Fairmount-McAfee-Rock Land Association

Sloping to steep, very shallow to moderately deep, clayey, rocky soils on uplands

This soil association consists of ridgetops dissected by many small, short streams (fig. 5). The ridgetops are narrow and break sharply to steep hillsides. This association occupies about 5 percent of the county. It occurs in the southeastern part, along the Kentucky River and

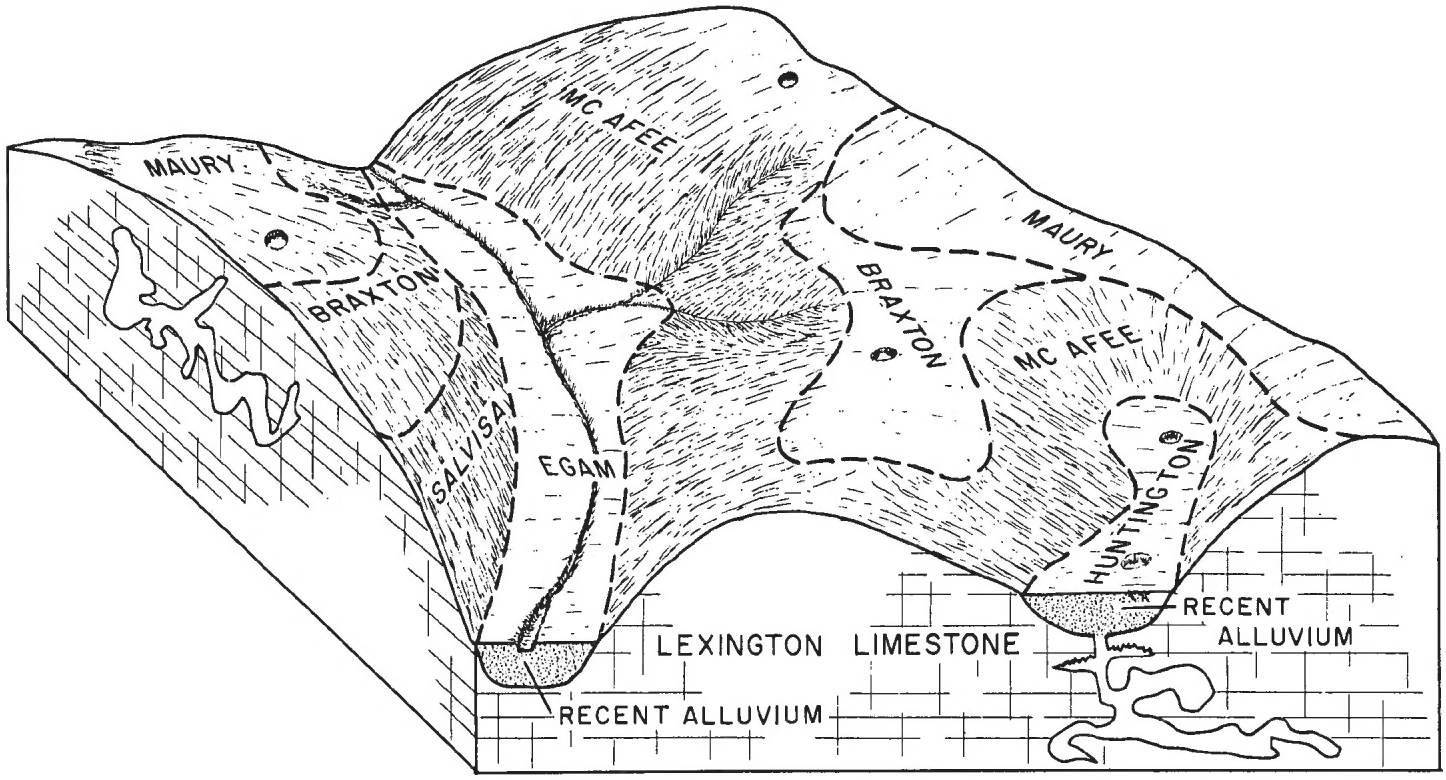

Figure 4.—Relationship of soils to topography and underlying material in association 3. Unshaded areas represent caverns or sinkholes in the limestone bedrock.

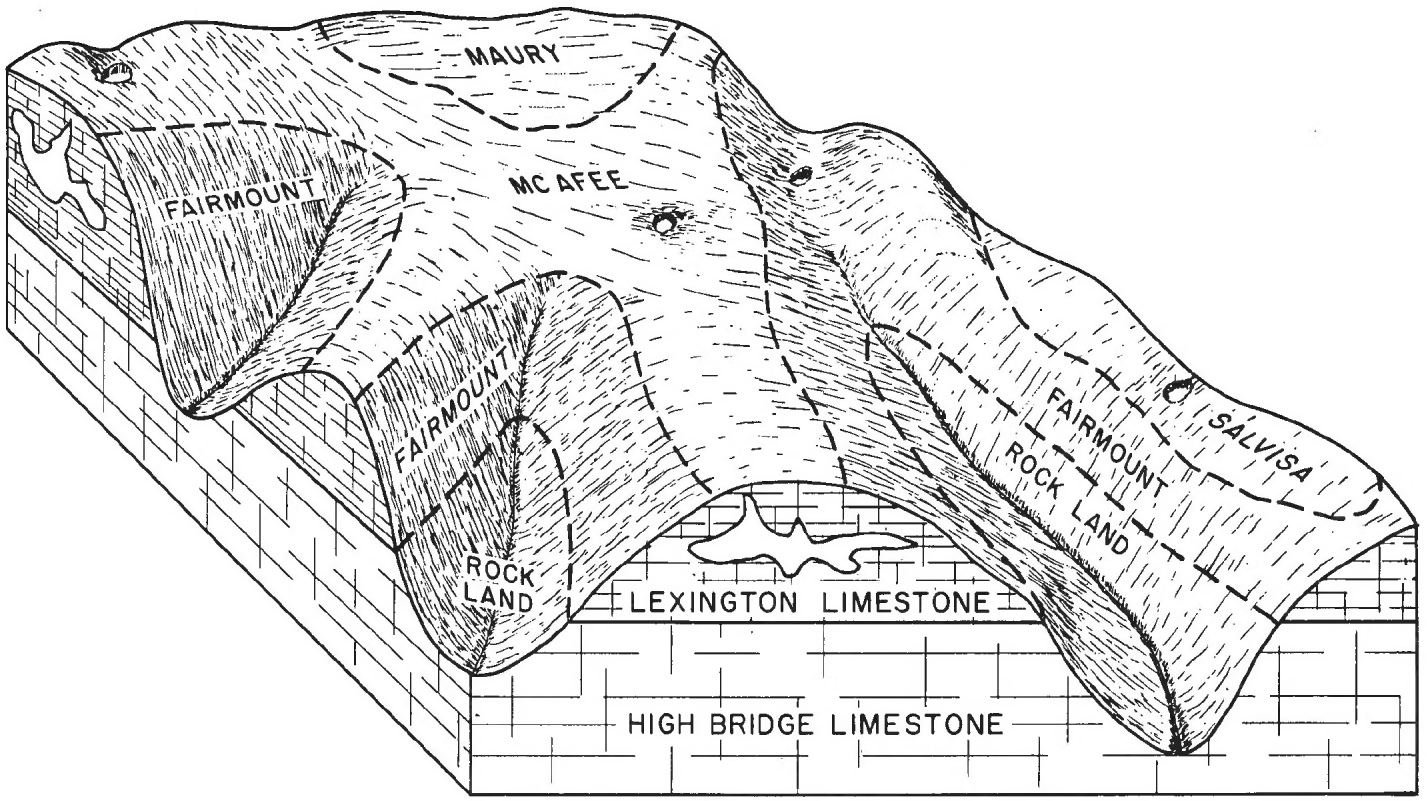

***Figure 5.*—Relationship of soils to topography and underlying material in association 4. Unshaded areas represent caverns or sinkholes in the limestone bedrock.**

Boone Creek. High limestone bluffs and long steep slopes are common along the Kentucky River gorge. Fairmount soils make up about 50 percent of the acreage, McAfee soils 20 percent, Rock land 15 percent, and minor soils the rest.

The dominant soils, Fairmount and McAfee, generally overlie limestone. Fairmount soils are on the steeper hillsides. They are shallow, clayey, excessively drained soils in which there are many outcrops and many loose slabs of limestone. McAfee soils occur on ridgetops and upper slopes. They are moderately deep to shallow and are well drained or somewhat excessively drained. Rock land, a miscellaneous land type, consists mostly of outcrops but, in places, has a thin mantle of soil material over limestone bedrock.

The minor soils in this association are the Salvisa and Maury, on ridges, and the Armour and Huntington, which are alluvial soils that occur as narrow, intermittent strips on flood plains along the Kentucky River.

The farms on this association are generally operated by the owners, some of whom are part-time farmers. Most of the acreage is suited to pasture, woodland, and wildlife, but only the deeper soils are suited to cultivation. Raising livestock and growing tobacco are the main farm enterprises. About 65 percent of the acreage has been cleared. Most of this is used for pasture and hay, but a small acreage of burley tobacco is grown on ridgetops and on flood plains along the Kentucky River. The remaining 35 percent is in low-grade hardwoods and redcedar trees or is grown over with brush.

5. Salvisa-Culleoka Association

Steep, deep to shallow, droughty soils on uplands

This soil association consists of narrow ridgetops and long, moderately steep or steep hillsides (fig. 6). The difference in elevation between the ridgetops and valleys is 200 to 250 feet. This association occupies about 1 percent of the county. It occurs in the extreme southeastern part, in a large meander of the Kentucky River. Salvisa soils make up 50 percent of this association, Culleoka soils about 30 percent, and minor soils the rest.

Salvisa soils are on side slopes. They are moderately deep or shallow, clayey, droughty soils underlain by limestone and calcareous shale. Culleoka soils are on ridgetops and upper slopes. They are mostly deep, medium-textured, somewhat droughty soils. They are underlain by siltstone, and siltstone fragments are common on steep slopes.

The minor soils in this association are the Lowell soils, on ridges, and the Armour and Huntington soils, on flood plains along the Kentucky River. There are also a few areas of Rock land.

This association is suited to limited use for grazing, to woodland, and to wildlife. About half the acreage is cleared, and this is used mostly for pasture and hay. Only a small acreage is suitable for cultivation. A small acreage of burley tobacco is grown on ridgetops, and tobacco and corn are grown on the Kentucky River flood plain. Some fields are idle and have been invaded by weeds and bushes. The uncleared acreage is in low-grade hardwoods, redcedar, and brush.

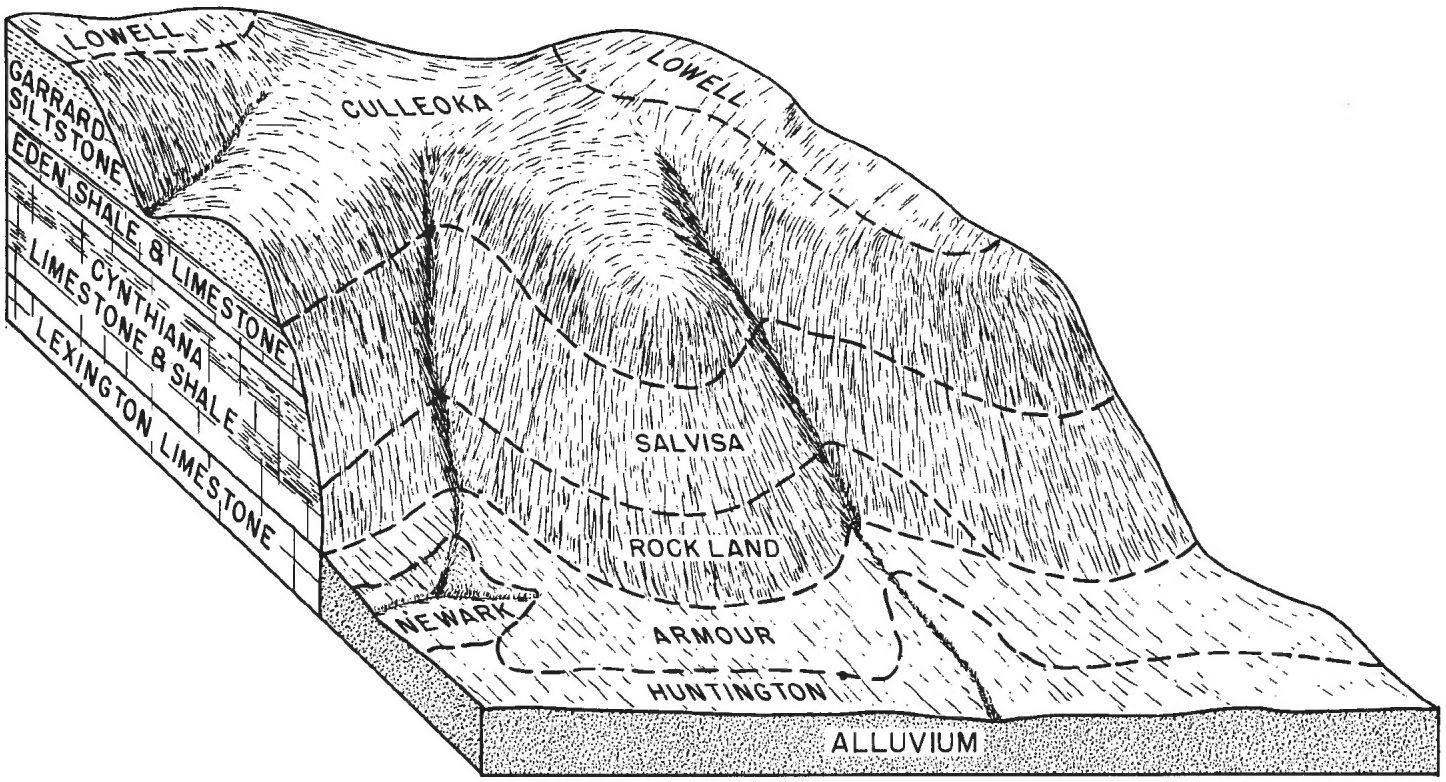

Figure 6.—**Relationship of soils to topography and underlying material in association 5.**

Descriptions of Soils

This section describes the soil series and mapping units of Fayette County. The approximate acreage and the proportionate extent of each mapping unit are given in table 1.

A general description of each soil series is given, and it is followed by brief descriptions of the mapping units in that series. For full information on any one mapping unit, it is necessary to read the description of the soil series as well as the description of the mapping unit.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of the description of each mapping unit is the capability unit in which the mapping unit has been placed. The page on which each capability unit is described can be found readily by referring to the "Guide to Mapping Units" at the back of the survey.

Soil scientists, engineers, students, and others who want detailed descriptions of soil series should turn to the section "Formation, Classification, and Morphology of Soils." Many terms used in this section and other sections are defined in the Glossary.

Armour Series

The Armour series consists of deep, well-drained, nearly level to sloping soils on stream terraces and on uplands. The soils of this series are mostly in the northern and western parts of the county. They formed mostly in silty material washed from soils of limestone origin. The silty deposits are about 3½ to 10 feet thick.

Representative profile:

0 to 16 inches, dark-brown or brown, very friable silt loam; weak, granular structure.
16 to 49 inches, brown silty clay loam that grades to reddish brown in the lower part; moderate, blocky structure.
49 to 56 inches, reddish-brown heavy silty clay loam; brown and light yellowish-brown mottles; weak, blocky structure.

These soils are well suited to crops commonly grown in the county. They are high in natural fertility and have a deep root zone. A few low-lying areas are subject to infrequent flooding, but crops are seldom damaged. About 300 acres has been used for residential development.

Armour silt loam, 0 to 2 percent slopes (ArA).—The profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid and medium in content of organic matter. The moisture-supplying capacity is high, and permeability is moderate. This soil can be tilled easily, without clodding or crusting, throughout a wide range of moisture content.

Mapped with this soil are a few small areas, along the Kentucky River, of a soil that has some sandy layers in the subsoil, or about 18 inches from the surface. These areas may be droughty.

This soil is well suited to crops commonly grown in this county, particularly alfalfa and burley tobacco. There is little or no hazard of erosion. In places, diversion channels are needed to intercept runoff from the slopes above and divert it into grassed waterways. A few low-lying areas are subject to infrequent flooding. (Capability unit I–3)

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

[Business section and older residential section of Lexington, a total of 4,100 acres, was not surveyed]

Soil	Acres	Percent	Soil	Acres	Percent
Armour silt loam, 0 to 2 percent slopes	780	0.4	Maury silt loam, 6 to 12 percent slopes, eroded	12,250	7.0
Armour silt loam, 2 to 6 percent slopes	2,590	1.5	Maury silt loam, 12 to 20 percent slopes, eroded	280	.2
Armour silt loam, 6 to 12 percent slopes	540	.3	Maury silty clay loam, 6 to 12 percent slopes, severely eroded	310	.2
Braxton silt loam, 2 to 6 percent slopes	530	.3	McAfee silt loam, 2 to 6 percent slopes	1,790	1.0
Braxton silt loam, 6 to 12 percent slopes, eroded	790	.5	McAfee silt loam, 6 to 12 percent slopes	2,990	1.7
Captina silt loam, 0 to 2 percent slopes	290	.2	McAfee silty clay, 6 to 12 percent slopes, severely eroded	470	.3
Captina silt loam, 2 to 6 percent slopes	640	.4	McAfee silty clay, 12 to 20 percent slopes, severely eroded	320	.2
Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded	340	.2	McAfee silty clay loam, 2 to 6 percent slopes, eroded	760	.4
Culleoka silt loam, 6 to 12 percent slopes, eroded	180	.1	McAfee silty clay loam, 6 to 12 percent slopes, eroded	9,540	5.4
Donerail silt loam, 0 to 2 percent slopes	700	.4	McAfee silty clay loam, 12 to 20 percent slopes, eroded	3,120	1.8
Donerail silt loam, 2 to 6 percent slopes	2,030	1.2	McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded	1,370	.8
Donerail silt loam, 6 to 12 percent slopes	210	.1	McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded	270	.2
Egam silt loam	1,380	.8	McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded	250	.1
Egam silty clay loam	220	.1	Melvin silt loam	330	.2
Fairmount very rocky silty clay loam, 6 to 20 percent slopes	1,490	.9	Mercer silt loam, 0 to 2 percent slopes	110	.1
Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded	2,250	1.3	Mercer silt loam, 2 to 6 percent slopes	4,920	2.8
Fairmount very rocky silty clay loam, 20 to 50 percent slopes	1,020	.6	Mercer silt loam, 2 to 6 percent slopes, eroded	230	.1
Huntington silt loam	7,580	4.3	Mercer silt loam, 6 to 12 percent slopes	1,130	.6
Lanton silty clay loam	2,190	1.3	Mercer silt loam, 6 to 12 percent slopes, eroded	1,310	.7
Lawrence silt loam	580	.3	Newark silt loam	2,970	1.7
Lindside silt loam	1,300	.7	Rock land	1,450	.8
Loradale silt loam, 2 to 6 percent slopes	5,310	3.0	Russellville silt loam, 2 to 6 percent slopes	350	.2
Loradale silt loam, 6 to 12 percent slopes	1,020	.6	Russellville silt loam, 6 to 12 percent slopes, eroded	230	.1
Loradale silt loam, 6 to 12 percent slopes, eroded	1,950	1.1	Salvisa silty clay, 6 to 12 percent slopes, severely eroded	590	.3
Loudon silt loam, phosphatic, 2 to 6 percent slopes	390	.2	Salvisa silty clay loam, 2 to 6 percent slopes, eroded	490	.3
Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded	310	.2	Salvisa silty clay loam, 6 to 12 percent slopes, eroded	2,500	1.4
Lowell silt loam, 2 to 6 percent slopes	9,770	5.6	Salvisa silty clay loam, 12 to 30 percent slopes, eroded	1,750	1.0
Lowell silt loam, 6 to 12 percent slopes, eroded	10,830	6.2	Urban land-Armour-Maury complex	1,390	.8
Lowell silt loam, 12 to 20 percent slopes, eroded	360	.2	Urban land-Loradale-Mercer complex	540	.3
Lowell silty clay loam, 6 to 12 percent slopes, severely eroded	790	.5	Water (lakes larger than 40 acres)	420	.2
Lowell silty clay loam, 12 to 20 percent slopes, severely eroded	310	.2	Total area surveyed	175,100	100.0
Made land, over silty materials	440	.2			
Made land, over clayey materials	840	.5			
Maury silt loam, 0 to 2 percent slopes	1,560	.9			
Maury silt loam, 2 to 6 percent slopes	49,090	28.0			
Maury silt loam, 2 to 6 percent slopes, eroded	2,590	1.5			
Maury silt loam, 6 to 12 percent slopes	7,480	4.3			

Armour silt loam, 2 to 6 percent slopes (ArB).—Except for having a surface layer only 12 to 14 inches thick, this soil has a profile like that described for the series. It is medium acid or strongly acid and medium in content of organic matter. The moisture-supplying capacity is high, and permeability is moderate. This soil can be tilled easily, without clodding or crusting, throughout a wide range of moisture content.

Mapped with this soil is a small acreage, along the Kentucky River, of a soil that has sandy layers in the subsoil. These areas are droughty.

This soil is well suited to crops commonly grown in this county, particularly alfalfa and burley tobacco. The hazard of erosion is moderate if cultivated crops are grown. Diversion channels can be used to intercept runoff from the slopes above and divert it into grassed waterways. A few low-lying areas are subject to infrequent flooding, but crops are seldom damaged. (Capability unit IIe–1)

Armour silt loam, 6 to 12 percent slopes (ArC).—The surface layer is only 8 to 10 inches thick, but the profile of this soil is otherwise like that described for the series. This soil is medium acid or strongly acid and medium in content of organic matter. The moisture-supplying capacity is high, and permeability is moderate. Good tilth is easily maintained.

This soil is well suited to crops commonly grown in the county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–1)

Braxton Series

The Braxton series consists of deep, well-drained, gently sloping to sloping soils on uplands. The soils of this series are mostly in the extreme western and south-

eastern parts of the county. They formed in material that weathered from cherty, phosphatic limestone.

Representative profile:

0 to 8 inches, dark-brown, very friable silt loam; weak, granular structure; few small fragments of chert.
8 to 15 inches, brown, friable silty clay loam; weak, blocky structure: few small fragments of chert.
15 to 35 inches, reddish-brown, cherty silty clay; moderate blocky structure.
35 to 48 inches, variegated yellowish-red and dark reddish-brown clay intermixed with pale-brown weathered chert; massive; very firm.

Fragments of chert, 1 to 5 inches in diameter, make up 10 to 40 percent of the subsoil. In places, the surface soil contains fragments of chert up to 3 inches in diameter. The depth to bedrock ranges from 3 to 8 feet.

These soils are suited to crops commonly grown in this county. They are high in natural fertility and have a deep root zone. Most of the acreage has been cleared and is used for pasture, row crops, small grain, and hay.

Braxton silt loam, 2 to 6 percent slopes (BrB).—This soil has a profile like the one described for the series. It is medium acid or strongly acid and medium in content of organic matter. The moisture-supplying capacity is moderately high or high, and permeability is moderate. This soil can be tilled easily, without clodding, throughout a wide range of moisture content.

This soil is well suited to crops commonly grown in this county. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–2)

Braxton silt loam, 6 to 12 percent slopes, eroded (BrC2).—This soil has a surface layer of heavy silt loam. Erosion has removed part of the original surface soil, and some subsoil has been mixed into the surface layer. The upper part of the subsoil is brown silty clay loam, and the lower part, below a depth of 11 inches, is reddish-brown, cherty silty clay.

This soil is medium acid or strongly acid and is low in content of organic matter. The moisture-supplying capacity is moderately high or high, and permeability is moderate. Tilth is good, except in a few places where there are fragments of chert.

Mapped with this soil is a small acreage of soil that has fragments of chert, up to 3 inches in diameter, in the surface layer.

This soil is suited to crops commonly grown in the county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–2)

Captina Series

The Captina series consists of nearly level and gently sloping, moderately well drained, medium-textured soils that have a fragipan. These soils are on stream terraces. They formed in alluvium washed mostly from soils of limestone origin. The alluvium is 3 to 12 feet thick. The depth to the fragipan ranges from 18 to 26 inches.

Representative profile:

0 to 8 inches, brown to dark-brown, very friable silt loam.
8 to 13 inches, yellowish-brown, friable silt loam; weak, blocky structure.
13 to 21 inches, yellowish-brown light silty clay loam; few pale-brown and strong-brown mottles; moderate, blocky structure.
21 to 40 inches, mottled brown, strong-brown, and light-gray silty clay loam; blocky structure; compact and brittle; fragipan.
40 to 54 inches, mottled light brownish-gray, yellowish-brown, and strong-brown silty clay; massive; many concretions in upper 6 inches.

These soils are suited to most crops commonly grown in this county and are used mostly for corn, small grain, hay, and pasture. They are medium acid or strongly acid, moderately high in natural fertility, and medium in content of organic matter. The moisture-supplying capacity is moderate. A few low-lying areas are subject to infrequent flooding, but crops are seldom damaged.

Captina silt loam, 0 to 2 percent slopes (CaA).—The profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid, medium in content of organic matter, and moderately high in natural fertility. The root zone is only moderately deep because of the fragipan in the subsoil. The moisture-supplying capacity is moderate. This soil is easy to till.

This soil is suited to most crops commonly grown in this county. Small areas in alfalfa fields usually start to thin out after about 2 years because the fragipan restricts the growth of roots. Burley tobacco does not grow well in either unusually wet or unusually dry seasons.

This soil can be cultivated continuously under high-level management. There is little or no hazard of erosion. In places, diversion channels are needed to intercept runoff from adjacent slopes and divert it into grassed waterways. A few low-lying areas are subject to infrequent flooding, but crops are seldom damaged. Wetness may prevent early planting in some years. (Capability unit IIw–1)

Captina silt loam, 2 to 6 percent slopes (CaB).—The profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid, medium in content of organic matter, and moderately high in natural fertility. The root zone is only moderately deep because of the fragipan in the subsoil. The moisture-supplying capacity is moderate.

This soil is suited to most crops commonly grown in this county. It is not well suited to alfalfa, because the fragipan in the subsoil restricts the growth of roots. Burley tobacco does not grow well in either unusually wet or unusually dry seasons.

The hazard of erosion is moderate if cultivated crops are grown. In places diversion channels are needed to intercept runoff from adjacent slopes and carry it into grassed waterways. A few low-lying areas are subject to infrequent flooding, but crops are seldom damaged. (Capability unit IIe–6)

Culleoka Series

The Culleoka series consists of deep, well drained and somewhat excessively drained, medium-textured soils on uplands. These soils occupy narrow, sloping ridgetops and steep side slopes in the extreme southeastern part of this county. The depth to bedrock ranges from 3 to 8 feet.

Representative profile:

0 to 8 inches, brown, very friable silt loam; weak, granular structure; few fragments of siltstone.
8 to 14 inches, brown, friable silt loam; weak, blocky structure; few fragments of siltstone.

14 to 30 inches, brown to strong-brown, friable silty clay loam; weak, blocky structure; common fragments of siltstone up to 8 inches in diameter.
30 to 40 inches +, intermixed layers of brown silty clay loam, silty clay, and weathered siltstone.

Culleoka soils on the ridgetops are suited to all crops commonly grown in this county, and those on the side slopes are suited to pasture or woodland. Pasture, hay, and burley tobacco are the main crops. About 70 percent of the acreage has been cleared, but part of this is idle. Brush is growing on many idle areas. These soils are medium acid or strongly acid, low in content of organic matter, and moderate in natural fertility.

Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded (ClF2).—The surface layer of this soil contains many siltstone flags and is only about 4 inches thick; otherwise, the profile is like that described for the series. Erosion has removed much of the original surface soil, and in places the subsoil is exposed. Some shallow gullies have formed. This soil is medium acid or strongly acid, low in content of organic matter, and moderate in natural fertility. The root zone is deep. Permeability is moderate to moderately rapid, and the moisture-supplying capacity is low.

Mapped with this soil are a few small areas of a soil that is only moderately deep to bedrock and a small acreage of a soil that is less steep.

This soil is suited to some kinds of wildlife and to recreational uses. About half the acreage is in low-quality woodland, and the rest is used for pasture or is idle. Most of this soil is too steep to be mowed with a tractor. Runoff is very rapid, and the hazard of erosion is very severe. (Capability unit VIIe–1)

Culleoka silt loam, 6 to 12 percent slopes, eroded (CsC2).—The profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid, low in content of organic matter, and moderate in natural fertility. The root zone is deep, and permeability is moderate. The moisture-supplying capacity is moderately high. This soil can be tilled, without clodding, throughout a wide range of moisture content.

Mapped with this soil are a few areas that are strongly sloping.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–1)

Donerail Series

The Donerail series consists of deep, moderately well drained, undulating and gently rolling soils on uplands. These soils are mostly in the northern and western parts of the county. They formed in material weathered from phosphatic limestone.

Representative profile:

0 to 10 inches, dark-brown, very friable silt loam.
10 to 17 inches, brown, friable silty clay loam; moderate, blocky structure.
17 to 28 inches, dark yellowish-brown light silty clay; few pale-brown and strong-brown mottles; moderate, blocky structure.
28 to 49 inches, mottled strong-brown and light brownish-gray silty clay or clay; many black concretions; weak, blocky structure to massive.

These soils are suited to most crops commonly grown in this county, and most of the acreage is in crops. About 700 acres is now urban. Burley tobacco does not grow well on these soils in wet years, and alfalfa usually starts to thin out after 2 or 3 years. These soils are medium acid or strongly acid, medium in content of organic matter, and high in natural fertility.

Donerail silt loam, 0 to 2 percent slopes (DoA).—Except for having a surface layer about 12 inches thick, this soil has a profile like the one described as representative of the series. It is medium acid or strongly acid, medium in content of organic matter, and high in natural fertility. The root zone is moderately deep, and permeability is moderately slow. The moisture-supplying capacity is moderate. This soil is easy to till.

This soil is suited to most crops commonly grown in this county. Wetness may prevent early spring planting. Burley tobacco does not grow well in wet years, and alfalfa usually starts to thin out after 2 or 3 years, because of wetness. Runoff is slow, and there is little or no hazard of erosion. (Capability unit IIw–1)

Donerail silt loam, 2 to 6 percent slopes (DoB).—The profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid, medium in content of organic matter, and high in natural fertility. The root zone is moderately deep. Permeability is moderately slow, and the moisture-supplying capacity is moderate.

This soil is suited to most crops commonly grown in this county. Burley tobacco does not grow well in wet years, and alfalfa usually starts to thin out after 2 or 3 years, because of wetness. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–6)

Donerail silt loam, 6 to 12 percent slopes (DoC).—Except that the surface layer is about 8 inches thick, the profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid, medium in content of organic matter, and high in natural fertility. The root zone is moderately deep. Permeability is moderately slow, and the moisture-supplying capacity is moderate. This soil can be worked, without clodding or crusting, throughout a wide range of moisture content.

Mapped with this soil is a small acreage in which the plow layer is a mixture of the original surface soil and subsoil.

This soil is suited to most crops commonly grown in this county. Burley tobacco does not grow well in wet years, and alfalfa usually starts to thin out after 2 or 3 years, because of wetness. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–8)

Egam Series

The Egam series consists of deep, well drained and moderately well drained soils on flood plains. These soils formed in alluvium washed from soils of limestone origin. They occur mostly in the northern and western parts of this county.

Representative profile:

0 to 8 inches, dark-brown, very friable silt loam; weak, granular structure.
8 to 18 inches, dark-brown, friable silty clay loam; moderate, granular and blocky structure.

18 to 31 inches, very dark grayish-brown heavy silty clay loam; weak, granular and blocky structure.
31 to 46 inches +, dark yellowish-brown heavy silty clay loam or silty clay; common, dark grayish-brown mottles.

These soils are suited to all crops commonly grown in this county. They are neutral or slightly acid, medium in content of organic matter, and high in natural fertility. The moisture-supplying capacity is high, and permeability is moderately slow. These soils are flooded occasionally, but since the flooding normally occurs in winter, crops are seldom damaged.

Egam silt loam (Ea).—This soil is level or nearly level. The profile is like that described as representative of the series. The root zone is deep. Permeability is moderately slow. This soil can be tilled easily, without clodding or crusting, throughout a wide range of moisture content.

This soil is suited to all crops commonly grown in this county. It is flooded occasionally, but since most floods occur before the growing season, they seldom damage crops. There is no erosion hazard. (Capability unit I–1)

Egam silty clay loam (Ec).—This soil is level or nearly level. Except for texture of the surface layer, the profile is like that described as representative of the series. The uppermost 18 inches is dark-brown silty clay loam. The root zone is deep. Permeability is moderately slow. The range of moisture content within which this soil can be worked, without clodding or crusting, is narrow.

This soil is suited to all crops commonly grown in this county. It is flooded occasionally, but since the floods occur before the growing season, they seldom damage crops. There is no hazard of erosion. (Capability unit IIs–3)

Fairmount Series

The Fairmount series consists of sloping to steep, very rocky, shallow, somewhat excessively drained soils. These soils formed in fine-textured residuum derived from argillaceous limestone. They occur in rough, broken areas, mostly in the southeastern part of this county.

Representative profile:

0 to 3 inches, very dark grayish-brown silty clay loam; sticky and plastic when wet; strong, granular structure.
3 to 8 inches, very dark grayish-brown, firm silty clay; very sticky and plastic when wet; strong, granular and blocky structure.
8 to 14 inches, variegated dark yellowish-brown and very dark gray, very firm clay; very sticky and very plastic when wet; moderate, blocky structure.
14 inches +, argillaceous limestone.

In slightly eroded areas, the surface layer is silty clay loam. Loose limestone slabs, in varying numbers, occur on the surface and throughout the profile. The depth to bedrock ranges from about 10 to 20 inches, and rock outcrops cover from 10 to 25 percent of the surface.

Nearly half of the acreage is in low-quality hardwoods and redcedar, which are of little value except for fenceposts and cordwood. The rest of the acreage is used mostly for pasture but is suitable for only limited grazing. These soils are neutral or slightly alkaline. The moisture-supplying capacity is low or very low.

Fairmount very rocky silty clay loam, 6 to 20 percent slopes (FaD).—Except that the surface layer is about 6 inches thick, the profile of this soil is like that described as representative of the series. The root zone is shallow or very shallow, and the moisture-supplying capacity is low or very low.

Mapped with this soil are some areas, ranging up to 3 acres in size, in which rock outcrops make up 25 to 90 percent of the surface area.

This soil is suited to pasture, woodland, and wildlife. The pasture plants should be able to withstand drought, and pastures should not be overgrazed. The woodlands consist of low-quality hardwoods and redcedar, which are suitable mainly for fenceposts and cordwood. This soil is susceptible to erosion if ground cover is not adequate. (Capability unit VIs–1)

Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded (FaD3).—The profile of this soil is like that described as representative of the series. The root zone is shallow or very shallow, and the moisture-supplying capacity is very low.

Mapped with this soil are some areas, ranging up to 3 acres in size, in which rock outcrops make up 25 to 90 percent of the surface area.

This soil is suitable mainly for woodland and wildlife. A few areas provide limited grazing if seeded to drought-resistant pasture plants. Some fenceposts and some cordwood can be harvested from the woodlands. (Capability unit VIIs–2)

Fairmount very rocky silty clay loam, 20 to 50 percent slopes (FaF).—Except that the surface layer is about 6 inches thick, the profile of this soil is like that described as representative of the series. The root zone is shallow or very shallow. The moisture-supplying capacity is very low.

Mapped with this soil are some areas, ranging up to 3 acres in size, in which rock outcrops make up 25 to 90 percent of the surface area.

This soil is suitable mainly for woodland and wildlife. A few areas provide limited grazing if seeded to drought-resistant pasture plants. Some fenceposts and some cordwood can be harvested, but growth is slow. (Capability unit VIIs–2)

Huntington Series

The Huntington series consists of deep, well-drained, medium-textured soils that occur on flood plains and in depressions throughout the county. These soils formed in materials that washed from limestone soils.

Representative profile:

0 to 28 inches, dark-brown, very friable silt loam; weak, granular structure.
28 to 37 inches, brown heavy silt loam; friable; weak, granular structure.
37 to 54 inches +, dark yellowish-brown light silty clay loam; few light brownish-gray mottles.

These soils are well suited to all crops commonly grown in this county. They are neutral or slightly acid, medium in content of organic matter, and high in natural fertility. The moisture-supplying capacity is high, and permeability is moderate. These soils are flooded occasionally, but since the flooding normally occurs in winter, crops are seldom damaged. About 400 acres is now urban.

Huntington silt loam (Hu).—This soil is level or nearly level. The profile is like that described as representative of the series. This soil is easy to till and can be worked,

without clodding or crusting, throughout a wide range of moisture content. The root zone is deep.

Included in the areas mapped are a few small areas of fine sandy loam.

This soil is well suited to all crops commonly grown in this county. It is flooded occasionally, but since the floods occur in winter, crops are seldom damaged. There is no hazard of erosion. (Capability unit I–1)

Lanton Series

The Lanton series consists of deep, somewhat poorly drained or poorly drained, dark-colored soils on flood plains. These soils formed in fine-textured alluvium derived from limestone.

Representative profile:

0 to 23 inches, very dark grayish-brown, friable silty clay loam; moderate, granular structure.
23 to 31 inches, very dark gray silty clay; olive-brown mottles; massive.
31 to 48 inches +, mottled dark-gray and light olive-brown, plastic clay; massive.

Lanton soils, if artificially drained, are suited to most crops commonly grown in this county. They are used mainly for corn, hay, and pasture. They are neutral or slightly acid, high in content of organic matter, and high in natural fertility. The moisture-supplying capacity is high, and permeability is moderately slow. The water table is seasonally high, and flooding is a hazard.

Lanton silty clay loam (La).—This soil is level or nearly level. The profile is like that described as representative of the series. The root zone is moderately deep; a clay layer at a depth of about 30 inches restricts roots. The range of moisture content within which this soil can be worked, without clodding or crusting, is narrow.

This soil, if artificially drained, is suited to most crops commonly grown in this county. It can be cultivated year after year under high-level management. Burley tobacco is not well suited, because there are normally some wet spots, even after drainage. There is a flood hazard but no erosion hazard. (Capability unit IIIw–7)

Lawrence Series

The Lawrence series consists of nearly level, somewhat poorly drained soils that have a fragipan at a depth of about 18 to 20 inches. These soils occur mainly in the east-central part of the county. They formed in material weathered from limestone and calcareous shale.

Representative profile:

0 to 8 inches, dark grayish-brown, very friable silt loam; weak, granular structure.
8 to 13 inches, brown, friable silt loam; common, light-gray mottles; weak, blocky structure.
13 to 20 inches, pale-brown heavy silt loam; many yellowish-brown and light brownish-gray mottles; moderate, blocky structure.
20 to 33 inches, light-gray silty clay loam; yellowish-brown mottles; compact and brittle; fragipan.
33 to 48 inches +, mottled gray and olive-brown silty clay; massive; sticky and plastic.

These soils are used mainly for pasture, but some corn is grown also. The water table is seasonally high, but the moisture-supplying capacity is moderately low because the fragipan limits the root zone. The depth to the fragipan ranges from 15 to 24 inches. A few low areas are subject to infrequent flooding. These soils are strongly acid, low in organic-matter content, and moderately low in natural fertility.

Lawrence silt loam (Lc).—This soil is level or nearly level. The profile is like that described as representative of the series. This soil is strongly acid, low in content of organic matter, and moderately low in natural fertility. The root zone is shallow or moderately deep, because of the fragipan. Permeability in the fragipan is slow. The moisture-supplying capacity is moderately low.

This soil is easy to till, but a seasonal high water table may prevent early planting. The major limitations are wetness and a limited root zone. (Capability unit IIIw–1)

Lindside Series

The Lindside series consists of nearly level, deep, moderately well drained soils on flood plains. These soils formed in alluvium washed mainly from soils of limestone origin.

Representative profile:

0 to 8 inches, dark-brown very friable silt loam; weak, granular structure.
8 to 30 inches, dark grayish-brown friable silt loam; grayish-brown mottles below 17 inches; weak, granular structure.
30 to 48 inches +, gray to dark-gray silt loam; dark yellowish-brown mottles; massive.

These soils are suited to most crops commonly grown in this county. They are neutral or slightly acid and are high in natural fertility. The root zone is deep. These soils are flooded occasionally, but since the floods normally occur in winter, crops are seldom damaged. For high-value crops, such as burley tobacco, tile drainage may be worth while. The moisture-supplying capacity is high.

Lindside silt loam (Ld).—This soil is level or nearly level. The profile is like that described as representative of the series. This soil is neutral or slightly acid, medium in content of organic matter, and high in natural fertility. The root zone is deep. Permeability is moderate, and the moisture-supplying capacity is high. This soil is easy to till.

This soil is suited to most crops commonly grown in this county. It is flooded occasionally, but since the floods occur in winter, they seldom damage crops. Burley tobacco does not grow well in wet years. Tile drainage may be worth while for high-value crops, such as tobacco. There is no hazard of erosion. (Capability unit I–1)

Loradale Series

The Loradale series consists of gently sloping or sloping, deep, well-drained soils that formed in residuum from limestone and calcareous shale. These soils occupy ridgetops and gentle hillsides, mainly in the east-central part of this county.

Representative profile:

0 to 11 inches, dark-brown, very friable silt loam; weak, granular structure.
11 to 23 inches, brown silty clay loam; friable to firm; moderate, blocky structure.
23 to 42 inches, strong-brown, very firm silty clay that grades to yellowish-brown in lower part; moderate, blocky structure.
42 to 54 inches +, mottled yellowish-brown and pale-brown, very plastic clay; massive.

These soils are suited to all crops commonly grown in this county. They are used for row crops, small grain, hay, and pasture. About 700 acres is now urban. These soils are medium acid or strongly acid and are high in natural fertility. Permeability is moderately slow, and the moisture-supplying capacity is high.

Loradale silt loam, 2 to 6 percent slopes (LoB).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter. The root zone is deep. This soil can be worked, without clodding or crusting, throughout a wide range of moisture content. Included in the areas mapped are some eroded areas in which some subsoil is mixed into the surface layer.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–2)

Loradale silt loam, 6 to 12 percent slopes (LoC).—Except for a surface layer only 8 inches thick, the profile of this soil is like that described as representative of the series. The soil is medium in content of organic matter. The root zone is deep. This soil is easy to till and can be worked, without clodding or crusting, throughout a wide range of moisture content.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–2)

Loradale silt loam, 6 to 12 percent slopes, eroded (LoC2).—This soil has a dark-brown to brown surface layer of heavy silt loam. Erosion has removed part of the original surface layer, and some subsoil has been mixed into the plow layer. Otherwise, the profile of this soil is like that described as representative of the series. The root zone is deep, the content of organic matter is low, and tilth is good.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–2)

Loudon Series

The Loudon series consists of gently sloping and sloping, deep, somewhat poorly drained soils on broad ridgetops and around the head of drains. These soils are mainly in the eastern part of the county and in a small area north of Greendale. They formed in residuum derived from interbedded limestone and calcareous shale.

Representative profile:

0 to 7 inches, dark grayish-brown, very friable silt loam.
7 to 17 inches, yellowish-brown, firm silty clay loam; few pale-brown mottles; moderate, blocky structure.
17 to 24 inches, yellowish-brown, plastic silty clay; light-gray and strong-brown mottles; moderate, blocky structure.
24 to 45 inches +, mottled strong-brown, light brownish-gray, and light-gray, very plastic clay; massive.

These soils are best suited to crops that tolerate wetness. All of the acreage has been cleared. Most of it is used for hay and pasture, but corn is grown in a few areas. These soils are strongly acid, moderate in natural fertility, and moderately slow in permeability. They have a seasonal high water table, and the shrink-swell potential is high.

Loudon silt loam, phosphatic, 2 to 6 percent slopes (LpB).—The profile of this soil is like that described as representative of the series. This soil has a moderately deep to shallow root zone because of a plastic clay layer in the subsoil. The content of organic matter is medium. The moisture-supplying capacity is moderately low.

Included in the areas mapped is a small acreage of nearly level soil.

This soil is easy to till, but wetness may prevent plowing early in spring. The hazard of erosion is moderate if cultivated crops are grown. The cropping system should be one that will effectively control erosion and maintain soil structure. (Capability unit IIIw–1)

Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded (LpC2).—This soil has a surface layer of brown, friable heavy silt loam, which is a mixture of the original surface soil and subsoil. Otherwise, this soil has a profile like the one described as representative of the series. The content of organic matter is medium. The root zone is moderately deep to shallow, because of a seasonal high water table and a plastic clay layer in the subsoil. Tillage is easy. The moisture-supplying capacity is moderately low.

Included in the areas mapped are some small areas of a soil that has a darker colored surface layer and a small acreage of a soil that is moderately well drained.

This soil is not well suited to alfalfa or other deep-rooted crops, because of the seasonal high water table. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–8)

Lowell Series

The Lowell series consists of undulating and gently rolling, deep, well drained and moderately well drained soils on uplands. These soils are mainly in the east-central part of the county. They formed in material weathered from interbedded limestone and calcareous shale.

Representative profile:

0 to 9 inches, brown, very friable silt loam; weak, granular structure.
9 to 16 inches, dark yellowish-brown, firm silty clay loam; weak, blocky structure.
16 to 33 inches, yellowish-brown, plastic silty clay; common, pale-brown mottles in lower part; blocky structure.
33 to 48 inches +, yellowish-brown, very plastic clay; many light brownish-gray mottles; massive.

These soils are suited to all crops commonly grown in this county. They are medium acid or strongly acid, and permeability is moderately slow. Most of the acreage has been cleared and is used for row crops, small grain, hay, and pasture (fig. 7). About 1,200 acres is now urban.

Lowell silt loam, 2 to 6 percent slopes (LwB).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter and moderately high in natural fertility. The root zone is moderately deep to deep. The moisture-supplying capacity is high. This soil is easy to till and can be worked, without clodding or crusting, throughout a wide range of moisture content.

This soil is well suited to all crops commonly grown in this county. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–2)

Lowell silt loam, 6 to 12 percent slopes, eroded (LwC2).—This soil has a surface layer of brown heavy silt

Figure 7.—Pasture on severely eroded Lowell silty clay loam. This soil has many galled spots, and grass is difficult to establish.

loam about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into the plow layer. A few shallow gullies have formed in some places. Otherwise, the profile of this soil is like that described as representative of the series. The organic-matter content is low, and natural fertility is moderately high. The root zone is only moderately deep because of a restrictive clay layer. The moisture-supplying capacity is moderately high. This soil is easy to till.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–2)

Lowell silt loam, 12 to 20 percent slopes, eroded (lwD2).—This soil has a surface layer of brown heavy silt loam about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into this layer. A few shallow gullies have formed in some places. Otherwise, the profile of this soil is like that described as representative of the series. This soil is low in content of organic matter and moderately high in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately low. This soil can be worked, without clodding, throughout a fairly wide range of moisture content.

Included in the areas mapped are small severely eroded areas in which little of the original surface layer remains.

Under high-level management, this soil is suited to most hay and pasture plants. It should be cultivated only occasionally, because the hazard of erosion is very severe. (Capability unit IVe–3)

Lowell silty clay loam, 6 to 12 percent slopes, severely eroded (lyC3).—This soil has a dark yellowish-brown surface layer that consists mostly of what was originally subsoil. Shallow gullies have formed in places. The subsoil is yellowish-brown, plastic silty clay that is underlain by massive clay at a depth of 20 to 26 inches. This soil is very low in content of organic matter and moderately low in natural fertility. The root zone is moderately deep because of a restrictive clay layer. The moisture-supplying capacity is moderately low. This soil can be worked, without clodding or crusting, only within a narrow range of moisture content.

This severely eroded soil is suitable for only occasional cultivation. Drought-resistant hay and pasture plants are the best crops. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IVe–11)

Lowell silty clay loam, 12 to 20 percent slopes, severely eroded (lyD3).—This soil has a brown, firm surface layer that is composed mostly of what was originally the upper part of the subsoil. The subsoil is yellowish-brown silty clay that grades into massive clay at about 20 to 26 inches. Some shallow gullies have formed in places. The content of organic matter is very low; natural fertility is moderate. The root zone is moderately deep. The moisture-supplying capacity is moderately low.

Included in the areas mapped is a small acreage that is moderately steep and a few areas in which the surface layer is heavy silt loam.

This soil is suited to hay and pasture but not to cultivated crops. The hazard of erosion is severe. (Capability unit VIe–1)

Made Land

Made land consists of areas in which at least 20 inches of clayey fill material has been placed over the original soils.

Made land, over silty materials (Md).—This mapping unit consists of fill material over alluvial soils along small streams and drainageways. The Huntington and Lanton soils are the most extensive of the underlying alluvial soils.

These areas are suited to recreational uses. This land type is so variable that onsite investigation is necessary to establish the capability classification of any given area.

Made land, over clayey materials (Me).—This mapping unit consists of fill material over well-drained, clayey soils on limestone uplands. The Maury and Lowell soils are the most extensive of the underlying clayey soils.

Most of this unit is in residential developments. This land type is so variable that onsite investigation is necessary to establish the capability classification of any given area.

Maury Series

The Maury series consists of nearly level to strongly sloping, deep, well-drained soils on uplands. These soils are mainly in the northern and western parts of the county, but some areas are in the eastern part. They formed mostly in material weathered from phosphatic limestone but partly in a mantle of silt.

Representative profile:

0 to 14 inches, dark-brown, very friable silt loam; moderate, granular structure.
14 to 38 inches, reddish-brown, friable silty clay loam that grades into silty clay in the lower part; moderate, blocky structure.
38 to 66 inches, yellowish-red, firm silty clay; moderate, blocky structure.
66 to 88 inches, yellowish-red, plastic clay; strong-brown and light yellowish-brown variegations.

These soils are used for row crops, small grain, hay, and pasture. About 7,000 acres has been absorbed into urban developments. These soils are medium acid or strongly acid. The surface texture is silty clay loam in severely eroded areas. The root zone is deep, and permeability is

moderate to a depth of about 60 inches. In places, underground water has formed solution caverns in the underlying limestone.

Maury silt loam, 0 to 2 percent slopes (MlA).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter and is naturally fertile. The root zone is deep. The moisture-supplying capacity is high. This soil is easy to till and can be worked, without clodding or crusting, throughout a wide range of moisture content.

This soil is well suited to all crops commonly grown in this county. Alfalfa and burley tobacco grow well. There is little or no hazard of erosion. (Capability unit I–3)

Maury silt loam, 2 to 6 percent slopes (MlB).—The surface layer is 10 to 12 inches thick, but the profile is otherwise like that described as representative of the series. It is high in natural fertility and medium in content of organic matter. The root zone is deep. The moisture-supplying capacity is high. This soil can be cultivated, without clodding or crusting, throughout a wide range of moisture content.

This soil is well suited to all crops commonly grown in this county. Alfalfa and burley tobacco grow well. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–1)

Maury silt loam, 2 to 6 percent slopes, eroded (MlB2).—This soil has a surface layer of dark-brown to reddish-brown, friable, heavy silt loam about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into the plow layer. Otherwise, the profile of this soil is like that described as representative of the series. This soil is medium acid or strongly acid and is high in natural fertility. Although the organic-matter content is low, tilth is good. The root zone is deep. The moisture-supplying capacity is high.

This soil is well suited to all crops commonly grown in this county. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–1)

Maury silt loam, 6 to 12 percent slopes (MlC).—The surface layer is about 8 inches thick, but the profile of this soil is otherwise like that described as representative of the series. It is high in natural fertility and medium in content of organic matter. The root zone is deep. The moisture-supplying capacity is high. This soil can be tilled, without clodding or crusting, throughout a wide range of moisture content.

This soil is suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–1)

Maury silt loam, 6 to 12 percent slopes, eroded (MlC2).—This soil has a surface layer of dark-brown to reddish-brown, friable heavy silt loam about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into the plow layer. Otherwise, the profile of this soil is like that described as representative of the series. This soil is high in natural fertility. Although low in content of organic matter, it is easy to till. The root zone is deep. The moisture-supplying capacity is high.

This soil is well suited to all crops commonly grown in this county. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–1)

Maury silt loam, 12 to 20 percent slopes, eroded (MlD2).—This soil has a dark-brown to reddish-brown, friable surface layer 6 or 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into the plow layer. Otherwise, the profile of this soil is like that described as representative of the series. Natural fertility is high. Although the organic-matter content is low, tilth is good. The root zone is deep. The moisture-supplying capacity is moderately high.

Included in mapping is a small acreage of a soil that has been severely eroded and now has a silty clay loam surface layer.

This soil is suited to all crops commonly grown in this county, but it should be cultivated only occasionally and should be used for hay or pasture most of the time. The hazard of erosion is very severe if cultivated crops are grown. (Capability unit IVe–1)

Maury silty clay loam, 6 to 12 percent slopes, severely eroded (MmC3).—This soil has a reddish-brown surface layer that consists almost entirely of what was originally the subsoil. The original surface layer has been removed by erosion, and shallow gullies have formed in some places. Otherwise, the profile of this soil is like that described as representative of the series. This soil is moderate in natural fertility and very low in content of organic matter. The root zone is deep. The moisture-supplying capacity is moderately high. The range of moisture content within which this soil can be tilled, without clodding or crusting, is narrow.

This soil is suited to most crops commonly grown in this county, but it should be kept most of the time in drought-resistant grasses and legumes. The hazard of erosion is very severe if cultivated crops are grown. (Capability unit IVe–9)

McAfee Series

The McAfee series consists of gently sloping to moderately steep, well drained to somewhat excessively drained soils on uplands. These soils are mostly in the northern, western, and southeastern parts of the county. They formed in material weathered from phosphatic limestone. They are moderately deep or shallow over bedrock and have rock outcrops in places.

Representative profile:

0 to 7 inches, dark-brown, very friable silt loam; moderate, granular structure.
7 to 18 inches, dark reddish-brown, very firm silty clay; strong, blocky structure.
18 to 26 inches, dark reddish-brown clay; strong-brown variegations; massive.
26 inches +, phosphatic limestone.

These soils are used mostly for hay and pasture, but a few of the gentle slopes are used for tobacco or corn. About 1,200 acres has been absorbed into urban developments. These soils are slightly acid or medium acid. Permeability is moderately slow or moderate. The texture of the surface soil is silty clay loam in eroded areas and silty clay in severely eroded areas. Solution caverns occur in the limestone bedrock, which is at a depth of 15 to 36 inches.

McAfee silt loam, 2 to 6 percent slopes (MnB).—The profile of this soil is like that described as representative

of the series. This soil is medium in content of organic matter and moderately high in natural fertility. The root zone is moderately deep. Tillage is easy. The moisture-supplying capacity is moderately high.

This soil is suited to most crops commonly grown in the county. The moderate depth of the root zone limits its suitability for deep-rooted crops. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–10)

McAfee silt loam, 6 to 12 percent slopes (MnC).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter and moderately high in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately high. Tillage is easy.

This soil is suited to most of the crops commonly grown in this county. The moderate depth of the root zone limits its suitability for deep-rooted crops. The hazard of erosion is very severe if cultivated crops are grown. (Capability unit IVe–6)

McAfee silty clay, 6 to 12 percent slopes, severely eroded (MoC3).—This soil has a dark reddish-brown, plastic surface layer that consists almost entirely of what was originally the subsoil. The uppermost few inches of the present subsoil is dark reddish-brown silty clay over very plastic clay. The average depth to bedrock is about 19 inches. A few rock outcrops and some shallow gullies occur in places. This soil is very low in content of organic matter and moderate in natural fertility. The root zone is shallow. The moisture-supplying capacity is low.

This soil is not suited to cultivated crops, because of shallowness and the hazard of further erosion. It is suited to hay and pasture. (Capability unit VIe–4)

McAfee silty clay, 12 to 20 percent slopes, severely eroded (MoD3).—This soil has a dark reddish-brown, plastic surface layer that consists almost entirely of what was originally the subsoil. The uppermost few inches of the present subsoil is a dark reddish-brown silty clay over plastic clay. The depth to bedrock is ordinarily about 18 inches. A few rock outcrops and some shallow gullies occur in places. This soil is very low in content of organic matter and moderate in natural fertility. The root zone is shallow. The moisture-supplying capacity is low.

This soil is not suited to cultivated crops, because of shallowness and the hazard of further erosion. (Capability unit VIe–4)

McAfee silty clay loam, 2 to 6 percent slopes, eroded (MpB2).—This soil has a dark-brown to dark reddish-brown, friable surface layer about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into this layer. The upper part of the subsoil is dark reddish-brown, plastic silty clay that grades into very plastic clay at about 17 inches. The depth to bedrock is ordinarily about 25 inches. This soil is very low in content of organic matter and moderately high in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately high. The range of moisture content within which this soil can be cultivated, without clodding or crusting, is narrow.

This soil is suited to all crops commonly grown in this county, but the depth of the root zone limits its suitability for deep-rooted crops. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–10)

McAfee silty clay loam, 6 to 12 percent slopes, eroded (MpC2).—This soil has a dark-brown to dark reddish-brown, friable surface layer about 6 inches thick. Erosion has removed part of the original surface layer, and some subsoil has been mixed into this layer. The upper part of the subsoil is dark reddish-brown, plastic silty clay that grades into very plastic clay at a depth of about 15 inches. The depth to bedrock is ordinarily about 23 inches. This soil is low in content of organic matter and moderately high in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately low. Tillage is somewhat difficult.

This soil is suited to most crops commonly grown in this county, but it should be cultivated only occasionally. Most of the time it should be used for drought-resistant grasses and legumes. The hazard of erosion is very severe if cultivated crops are grown. (Capability unit IVe–6)

McAfee silty clay loam, 12 to 20 percent slopes, eroded (MpD2).—This soil has a dark-brown to dark reddish-brown surface layer that is a mixture of the original surface soil and subsoil. The upper part of the subsoil is dark reddish-brown, plastic silty clay that grades into very plastic clay at a depth of about 13 inches. The depth to bedrock is ordinarily about 21 inches. A few rock outcrops occur in places. This soil is low in content of organic matter and moderately high in natural fertility. The root zone is moderately deep or shallow. The moisture-supplying capacity is moderately low.

This soil is not suited to row crops, because of the hazard of erosion. It is suited to hay and pasture crops. The shallow or moderately deep root zone limits its suitability for deep-rooted crops. (Capability unit VIe–1)

McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded (MrD2).—This soil has a dark-brown to dark reddish-brown surface layer that is a mixture of the original surface soil and subsoil. The uppermost few inches of the subsoil is dark reddish-brown, plastic silty clay over very plastic clay. The depth to bedrock is ordinarily about 20 inches, and exposed bedrock makes up about 10 to 20 percent of the surface. There are a few shallow gullies, and loose limestone slabs are common on the surface. This soil is low in content of organic matter and moderate in natural fertility. The root zone is shallow or moderately deep. The moisture-supplying capacity is low.

This soil is not suited to row crops, because of shallowness and droughtiness. If well managed, it produces fairly good pasture. (Capability unit VIs–1)

McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded (MrE2).—This soil has a dark reddish-brown, firm surface layer that is a mixture of the original surface soil and the subsoil. The uppermost few inches of the subsoil is dark reddish-brown, plastic silty clay loam that grades into very plastic clay. The depth to bedrock is ordinarily about 18 inches. Rock outcrops make up about 10 to 20 percent of the surface, and loose limestone slabs are numerous. Shallow gullies have formed in places. This soil is low in content of organic matter and moderate in natural fertility. The root zone is shallow. The moisture-supplying capacity is very low.

This soil is suited to trees and to close-growing grasses and legumes. (Capability unit VIIs–2)

McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded (MsD3).—This soil has a dark reddish-brown, plastic surface layer that contains little of the original surface soil. The subsoil is dark reddish-brown, very plastic clay. The depth to bedrock is ordinarily about 16 inches, and rock outcrops make up about 15 to 25 percent of the surface. Loose limestone slabs are numerous, and shallow gullies have formed in some places. This soil is very low in content of organic matter and moderately low in natural fertility. The root zone is shallow. The moisture-supplying capacity is low.

This soil is too shallow and droughty for row crops. It is suited to woodland and limited grazing. (Capability unit VIIs–2)

Melvin Series

The Melvin series consists of nearly level, deep, poorly drained soils on flood plains. These soils formed in alluvium washed from soils derived from limestone and calcareous shale.

Representative profile:

0 to 8 inches, grayish-brown, very friable silt loam; dark yellowish-brown mottles.
8 to 48 inches +, gray silt loam that grades into silty clay loam at a depth of about 30 inches; many dark yellowish-brown and dark grayish-brown mottles.

These soils are suited to willows or other water-tolerant trees and to pasture. Unless artificially drained, they are not suited to cultivated crops. Flooding and a high water table are limitations. These soils are neutral or slightly acid. They are low in content of organic matter, moderately low in natural fertility, and moderately permeable. The moisture-supplying capacity is high.

Melvin silt loam (Mt).—This soil is level or nearly level. The profile is like that described as representative of the series. If it is artificially drained, this soil can be used for corn and for a variety of forage crops. There is no hazard of erosion. Flooding, ponding, and a seasonal high water table are hazards that limit the growth of plants. (Capability unit IIIw–5)

Mercer Series

The Mercer series consists of nearly level to sloping, deep, moderately well drained soils that have a fragipan. These soils are mainly in the east-central part of the county, north and south of Winchester Road. They formed in material weathered from limestone interbedded with thin layers of calcareous shale. They are located generally on broad ridgetops and around the head of drains.

Representative profile:

0 to 8 inches, dark grayish-brown, very friable silt loam; weak, granular structure.
8 to 14 inches, dark yellowish-brown, friable silt loam; weak, granular structure.
14 to 21 inches, yellowish-brown silty clay loam; weak, blocky structure.
21 to 38 inches, mottled yellowish-brown and light brownish-gray silty clay loam; compact and brittle; fragipan.
38 to 48 inches +, yellowish-brown very plastic clay; many gray mottles; massive.

These soils are suited to most crops commonly grown in this county. Alfalfa does not grow well, because the fragipan restricts the growth of roots. These soils are medium acid or strongly acid and are moderate in natural fertility. Permeability is slow. The depth to the fragipan ranges from about 15 to 26 inches, and the fragipan is from 12 to 24 inches thick.

Mercer silt loam, 0 to 2 percent slopes (MuA).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter. The root zone is moderately deep. The moisture-supplying capacity is moderate. Tillage is easy, but wetness may prevent early spring plowing.

This soil is suited to most crops commonly grown in this county. Alfalfa, however, starts to thin out after about 2 years, because of wetness, and burley tobacco does not grow well during unusually wet or unusually dry years. There is little or no hazard of erosion. (Capability unit IIw–1)

Mercer silt loam, 2 to 6 percent slopes (MuB).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter. The root zone is moderately deep. The moisture-supplying capacity is moderate.

This soil is suited to most crops commonly grown in this county. Alfalfa is not well suited, because the fragipan restricts the growth of roots. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–6)

Mercer silt loam, 2 to 6 percent slopes, eroded (MuB2).—This soil has a brown, friable surface layer about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into this layer. Otherwise, the profile of this soil is like that described as representative of the series. Although low in content of organic matter, this soil is easy to till. The root zone is shallow or moderately deep. The moisture-supplying capacity is moderately low.

This soil is suited to most crops commonly grown in this county, although it is somewhat droughty. It is not well suited to alfalfa, because of the shallow root zone and seasonal wetness. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–6)

Mercer silt loam, 6 to 12 percent slopes (MuC).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter. The root zone is moderately deep. The moisture-supplying capacity is moderate.

This soil is suited to most crops commonly grown in this county. Alfalfa, however, starts to thin out after about 2 years, because of the moderately deep root zone and seasonal wetness. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–8)

Mercer silt loam, 6 to 12 percent slopes, eroded (MuC2).—This soil has a brown, friable surface layer that is a mixture of the original surface soil and subsoil. Otherwise, the profile of this soil is like that described as representative of the series. Although low in content of organic matter, this soil is easy to till. The root zone is shallow. The moisture-supplying capacity is moderately low.

This soil is fairly well suited to most crops commonly grown in this county. It is not well suited to alfalfa, because of a shallow root zone and seasonal wetness. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–8)

Newark Series

The Newark series consists of nearly level, deep, somewhat poorly drained soils on flood plains. These soils are mostly in the eastern part of the county. They formed in alluvium washed from soils derived from limestone and calcareous shale.

Representative profile:

0 to 11 inches, dark grayish-brown, very friable silt loam; grayish-brown mottles in the lower part.
11 to 18 inches, grayish-brown, friable silt loam; yellowish-brown mottles.
18 to 48 inches +, gray silt loam that grades into silty clay loam; yellowish-brown and dark yellowish-brown mottles.

These soils are used mostly for pasture, but corn and hay are grown in some places. They are neutral or slightly acid, moderate or moderately high in natural fertility, and moderately permeable. The texture of the lowest layer may be silt loam or light silty clay loam. The flood hazard and a seasonal high water table are limitations. The moisture-supplying capacity is high.

Newark silt loam (Ne).—This soil is level or nearly level. The profile is like that described as representative of the series.

Unless this soil is artificially drained, the choice of crops is limited. Flooding is a moderate hazard, and scouring may occur in some places. Wetness is the main limitation. (Capability unit IIw–4)

Rock Land

Rock land (Rk) consists of areas where rock outcrop or a very thin layer of soil material over rock makes up 25 to 90 percent of the surface. Fairmount soils occupy the areas between the rocks. Most of this land type is in the southeastern part of the county. The slope is generally more than 20 percent, but the slope range is wide.

This mapping unit is suitable only for woodland, wildlife areas, or pasture (fig. 8). Most of the trees are low-quality hardwoods and redcedars, and the pastures are suitable for only limited grazing (Capability unit VIIs–2)

Figure 8.—Low-quality pasture on Rock land.

Russellville Series

The Russellville series consists of gently sloping and sloping, well drained and moderately well drained soils that have a fragipan. These soils occur on broad ridgetops and gentle slopes in a small area about 2 miles east of Lexington, north and south of Winchester Road.

Representative profile:

0 to 8 inches, dark-brown, very friable silt loam.
8 to 33 inches, brown silt loam that grades with depth into strong-brown silty clay loam; a few pale-brown and light-gray mottles in the lower part; moderate, blocky structure.
33 to 48 inches, mottled strong-brown, yellowish-red, and light-gray silty clay loam; weak, blocky structure; fragipan.
48 to 62 inches, mottled strong-brown, light yellowish-brown, and red silty clay; massive.

These soils are suited to all crops commonly grown in this county. They are strongly acid and are moderately high in natural fertility. The lowest horizon is clay in places. Permeability is moderate above the fragipan and slow in the fragipan. The depth to the fragipan ranges from 28 to 36 inches. Alfalfa may start to thin out after a few years, because the fragipan restricts the growth of roots. These soils have a seasonal high water table.

Russellville silt loam, 2 to 6 percent slopes (RuB).—The profile of this soil is like that described as representative of the series. This soil is medium in content of organic matter. The root zone is moderately deep. The moisture-supplying capacity is moderately high.

This soil is suited to crops commonly grown in this county. Alfalfa may start to thin out after a few years, because the fragipan restricts the growth of roots. The hazard of erosion is moderate if cultivated crops are grown. (Capability unit IIe–2)

Russellville silt loam, 6 to 12 percent slopes, eroded (RuC2).—This soil has a brown, friable surface layer about 7 inches thick. Erosion has removed part of the original surface soil, and some subsoil has been mixed into this layer. Otherwise, the profile of this soil is like that described as representative of the series. Although this soil is low in content of organic matter, it has good tilth. The root zone is moderately deep. The moisture-supplying capacity is moderately high.

This soil is suited to all crops commonly grown in this county. Alfalfa may start to thin out after a few years, because the fragipan restricts the growth of roots. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–2)

Salvisa Series

The Salvisa series consists of gently sloping to moderately steep, well drained or somewhat excessively drained, moderately deep or shallow soils on uplands. These soils occur mostly in the eastern half of the county. They formed in material weathered from limestone and calcareous shale. Rock outcrops occur in places.

Representative profile:

0 to 7 inches, very dark grayish-brown, friable silty clay loam; moderate, granular and blocky structure.
7 to 16 inches, dark yellowish-brown, plastic silty clay; moderate, blocky structure.
16 to 28 inches, yellowish-brown, very plastic clay; many light yellowish-brown and light grayish-brown mottles; weak, blocky structure to massive in the lower part.
28 inches +, interbedded limestone and calcareous shale.

These soils are suited to forage crops. They are neutral or slightly acid, and permeability is moderately slow. The texture of the surface layer is silty clay in severely eroded areas. The depth to bedrock ranges from about 15 to 36 inches. About 80 percent of the acreage is cleared and is used mostly for hay and pasture. About 400 acres has been absorbed into urban developments.

Salvisa silty clay, 6 to 12 percent slopes, severely eroded (ScC3).—This soil has a dark yellowish-brown surface layer composed mostly of what was originally the subsoil. Erosion has removed the original surface soil and has formed shallow gullies in places. The subsoil is yellowish-brown, very plastic clay. It overlies bedrock at a depth of about 18 to 20 inches. This soil is very low in content of organic matter and moderately low in natural fertility. The root zone is shallow. The moisture-supplying capacity is low.

Included in the areas mapped are some areas of a strongly sloping soil.

This soil is not suited to cultivated crops, because of the effects of erosion. (Capability unit VIe–4)

Salvisa silty clay loam, 2 to 6 percent slopes, eroded (ScB2).—The profile of this soil is like that described as representative of the series. This soil is low in content of organic matter and moderate in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately high. The range of moisture content within which this soil can be tilled, without clodding and crusting, is narrow.

Included in the areas mapped is a small acreage of a soil that has a thicker, less clayey surface soil.

This soil is suited to all crops commonly grown in this county, but the moderate depth of the root zone limits its suitability for deep-rooted crops. The hazard of erosion is severe if cultivated crops are grown. (Capability unit IIIe–10)

Salvisa silty clay loam, 6 to 12 percent slopes, eroded (ScC2).—This soil has a surface layer about 6 inches thick. Erosion has removed part of the original surface soil, and some of the original subsoil has been mixed into the plow layer. The upper part of the subsoil is dark yellowish-brown silty clay. This grades into yellowish-brown, very plastic clay at a depth of about 14 inches. The depth to bedrock is ordinarily about 2 feet. This soil is low in content of organic matter and moderate in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately low. Tillage is difficult because of a tendency to clod.

This soil is well suited to drought-resistant crops. Although the hazard of erosion is very severe, cultivated crops can be grown occasionally. (Capability unit IVe–6)

Salvisa silty clay loam, 12 to 30 percent slopes, eroded (ScE2).—This soil has a very dark grayish-brown surface layer that is a mixture of the original surface soil and subsoil. The subsoil is dark yellowish-brown silty clay that grades to yellowish-brown, very plastic clay at a depth of about 12 inches. The depth to bedrock is ordinarily about 20 inches, and some rock ledges are exposed on the surface. This soil is neutral or slightly acid, low in content of organic matter, and moderate in natural fertility. The root zone is shallow to moderately deep. The moisture-supplying capacity is low.

Included in the areas mapped are some areas of a soil that has steep slopes.

This soil is not suited to cultivated crops, because of the effects of erosion. It is suited to drought-resistant forage crops. (Capability unit VIe–1)

Urban Land Complexes

These complexes consist of soils from which the upper layers have been removed in grading.

Urban land-Armour-Maury complex (Ua).—Before grading, these areas consisted mainly of the well-drained Armour and Maury soils. The remaining soil material is generally reddish-brown, plastic, clayey, and moderately permeable. This land type is so variable that onsite investigation is necessary to establish the capability classification of any given area.

Urban land-Loradale-Mercer complex (Um).—Before grading, these areas consisted mainly of the well drained Loradale and the moderately well drained Mercer soils. The remaining soil material is generally yellowish brown, very plastic, clayey, and slowly or moderately slowly permeable. This land type is so variable that onsite investigation is necessary to establish the capability classification of any given area.

Use of Soils for Crops and Pasture

This section describes some basic practices of management for soils used for crops and pasture. The system of capability grouping is defined, and the use and management of the soils in each capability unit are discussed. Also given in this section are estimated yields of the principal crops under high-level and medium-level management.

General Principles of Soil Management

Most of the soils in Fayette County are naturally acid and have a medium or low supply of nitrogen and potassium and a high or medium supply of phosphorus. Ordinarily, the response to lime and fertilizer is good. The amounts to be applied depend on past cropping, on the type of soil, on the crops to be grown, and on the level of yield desired. The amounts applied should be based largely on the results of laboratory analysis of soil samples. Information and instructions on collecting samples and testing them can be obtained from a local representative of the Soil Conservation Service or from the county extension agent.

Most of the soils are medium or low in organic-matter content. It is not generally feasible to build up the content to a high level, but it is important to maintain the supply. This can be done by applying manure, by utilizing crop residues, and by encouraging the growth of plants.

Tillage tends to destroy the structure of a soil; consequently, it should be limited to the operations necessary for the preparation of a seedbed and the control of weeds. Adding organic matter and growing sod crops help to restore the structure.

A major problem in Fayette County is controlling runoff so as to reduce the hazard of erosion. Sheet and gully erosion cause large losses of organic matter and plant nutrients. All of the sloping soils in the county are subject to erosion if cultivated. Suitable crop rotations,

Figure 9.—**Nursery stock planted on the contour on Maury silt loam, 2 to 6 percent slopes. The short rows point into the terrace channel.**

contour cultivation (fig. 9), stripcropping, diversions, terraces, grassed waterways (fig. 10), minimum tillage, and proper use of crop residues are effective in the control of runoff and erosion. Assistance in the control of erosion for a particular farm can be obtained from the Soil Conservation Service technician in Lexington.

Open ditches and tile drains are the two methods normally used in draining wet soils. Neither method has been used extensively in this county. Tile drains are more expensive than ditches but generally more satisfactory. Neither ditches nor tile can be used unless suitable outlets are available. Ordinarily, soils that have a claypan or a fragipan are difficult to drain. Tile drains are generally not effective in pan soils, and open ditches are most effective if they intercept water that is moving laterally on top of the pan.

Capability Groups of Soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; and without consideration of possible but unlikely major reclamation projects.

In the capability system, all kinds of soils are grouped at three levels: the class, the subclass, and the unit. These are discussed in the following paragraphs.

Capability Classes, the broadest groups, are designated by Roman numerals I through VIII. The higher the number is, the greater are the limitations and the narrower the choices for practical use. The classes are defined as follows:

Class I. Soils have few limitations that restrict their use.

Class II. Soils have some limitations that reduce the choice of plants or require moderate conservation practices.

Class III. Soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV. Soils have very severe limitations that restrict the choice of plants, require very careful management, or both.

Class V. Soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife food and cover. None of the soils in Fayette County are in class V.

Class VI. Soils have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.

Class VII. Soils have very severe limitations that make them unsuitable for cultivation and restrict their use largely to pasture or range, woodland, or wildlife food and cover.

Class VIII. Soils and landforms have limitations that preclude their use for commercial production of plants and restrict their use to recreation, wildlife, water supply, or esthetic purposes. None of the soils in Fayette County are in class VIII.

Capability Subclasses are soil groups within one class; they are designated by adding a small letter *e*, *w*, *s*, *or c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses identified by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture or range, woodland, wildlife, or recreation.

Figure 10.—**Terraces and grassed waterways on Maury silt loam, 2 to 6 percent slopes.**

CAPABILITY UNITS are soil groups within the subclasses. All the soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to be alike in productivity and other responses to management. The capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–1 or IIIe–2. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral identifies the capability unit.

Management by capability units [1]

The soils of Fayette County have been grouped into 25 capability units. These units are not numbered consecutively, because not all of the units in the statewide system are represented in this county. A description of these units is given in the following pages. Each description discusses the characteristics and qualities of the soils in the unit, the suitability of these soils for crops, the major limitations or hazards, and effective management practices.

The description of each unit in classes IIe, IIIe, and IVe includes an example of a cropping system that can be used, in combination with specified conservation practices, on a particular soil having a slope of the given gradient and length, without causing more than the estimated permissible loss of soil. The permissible loss is the maximum average annual loss, in tons per acre, that will not cause deterioration of the soil or impair its ability to support plants. On slopes that are longer but no steeper, more row crops can be grown if more intensive conservation measures are applied. If slopes are both longer and steeper, or if conservation practices are less intensive, the cropping system ought to include fewer row crops and more sod crops.

Suggestions are given for both high-level and medium-level management of pastures. High-level management includes the practices necessary for the highest sustained production that is economically feasible. Medium-level management is the minimum that will keep the soil from deteriorating and produce enough forage for some profit.

CAPABILITY UNIT I–1

This capability unit consists of nearly level, deep, moderately well drained and well drained soils on flood plains and in depressions. These soils occupy about 5.8 percent of the area surveyed. They are neutral or slightly acid, medium in content of organic matter, and moderately high or high in natural fertility. Permeability is moderately rapid to moderately slow. The moisture-supplying capacity is high.

These soils are well suited to cultivated crops, hay, and pasture. Tobacco, corn, and small grain can be grown year after year under high-level management. Hay and pasture can be grown under medium-level or high-level management. Irrigating high-value crops may be advantageous.

These soils can be tilled easily, without clodding, throughout a wide range of moisture content. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. These soils are flooded occasionally, but since the floods normally occur in winter, crops are seldom damaged. There is no erosion hazard. The response to fertilizer is good, and lime ordinarily is not needed.

CAPABILITY UNIT I–3

This capability unit consists of nearly level, medium-textured, well-drained soils on stream terraces and on uplands. These soils occupy about 1.3 percent of the area surveyed. They are medium or strongly acid, medium in content of organic matter, and high in natural fertility. The surface layer is friable, and the root zone is deep. The moisture-supplying capacity is high, and permeability is moderate.

These soils are well suited to cultivated crops, hay (fig. 11), and pasture. Tobacco, corn, and small grain can be grown year after year under high-level management. Hay and pasture can be grown under medium-level or high-level management. Irrigating high-value crops may be advantageous.

These soils can be tilled easily. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter.

There is no erosion hazard. The response to lime and fertilizer is very good.

CAPABILITY UNIT IIe–1

This capability unit consists of gently sloping, well-drained soils on stream terraces and uplands. These soils occupy about 31 percent of the area surveyed. They are medium acid or strongly acid, medium in content of organic matter, and high in natural fertility. The surface layer is medium-textured and friable, and the root zone is deep and permeable. The moisture-supplying capacity is high.

These soils are suited to all cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are corn, tobacco (fig. 12), and small grain. Suitable pasture and meadow plants are Kentucky bluegrass, smooth bromegrass, Kentucky 31 tall fescue, orchardgrass, timothy, alfalfa, red clover, Ladino clover,

Figure 11.—**Harvesting alfalfa on Maury silt loam, 0 to 2 percent slopes. The soil is in capability unit I–3 and is well suited to alfalfa.**

[1] WALTER J. GUERNSEY, conservation agronomist, Soil Conservation Service, helped to prepare this section.

white clover, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Tillage is easy. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is moderate. The response to lime and fertilizer is good. Irrigating high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, in an area of Maury silt loam where the slope is 4 percent and 100 feet in length, corn can be grown continuously if the fields are contour farmed, if crop residue is left on the surface through the winter, and if the general level of management is high.

CAPABILITY UNIT IIe-2

This capability unit consists of gently sloping, well-drained soils on uplands. These soils occupy about 9.1 percent of the area surveyed. They are medium acid or strongly acid, high or moderately high in natural fertility, and medium in content of organic matter. The surface layer is medium-textured and friable, and the subsoil is either clayey and plastic or has a fragipan in the lower part. The root zone is deep or moderately deep. The moisture-supplying capacity is high or moderately high, and permeability is moderately slow or moderate.

These soils are suited to nearly all cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are corn, tobacco, and small grain. Suitable pasture and meadow plants are alfalfa, Kentucky 31 tall fescue, Kentucky bluegrass, orchardgrass, smooth bromegrass, red clover, Ladino clover, white clover, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Tillage is easy. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is moderate. The response to lime and fertilizer is good. Irrigating high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices may be used to slow surface runoff and control erosion. For example, in an area of Lowell silt loam where the slope is 4 percent and 100 feet in length, a cropping system of 2 years of corn followed by 1 year of meadow can be used if the fields are contour farmed, if the corn is harvested for silage, and if the general level of management is high.

CAPABILITY UNIT IIe-6

This capability unit consists of gently sloping, moderately well drained soils on stream terraces and uplands. These soils occupy about 4.5 percent of the area surveyed. They are medium acid or strongly acid, medium or low in content of organic matter, and moderate to high in natural fertility. The root zone is moderately deep, and it overlies a slowly permeable fragipan or clayey layer. The moisture-supplying capacity is moderate.

These soils are suited to all cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are corn, tobacco, and small grain. Suitable pasture and meadow plants are Kentucky 31 tall fescue, orchardgrass, Ladino clover, red clover, Kentucky bluegrass, timothy, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management. Alfalfa can be grown under high-level management, but the stands are good for only 3 or 4 years.

Figure 12.—**Burley tobacco on gently sloping Maury silt loam, which is in capability unit IIe-1.**

Tillage is easy, but a seasonal high water table may prevent early planting. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is moderately low. The response to lime and fertilizer is good. Irrigating high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices may be used to slow surface runoff and control erosion. For example, in an area of Mercer silt loam where the slope is 4 percent and 100 feet in length, a cropping system of 2 years of corn followed by 1 year of meadow can be used if the first corn crop is used for silage along with a winter cover crop, if the second corn crop is used for grain and the crop residue is left on the land, and if the general level of management is high.

CAPABILITY UNIT IIw-1

This capability unit consists of nearly level, moderately well drained soils on uplands and stream terraces. These soils occupy about 0.7 percent of the area surveyed. They are medium acid or strongly acid, medium in content of organic matter, and moderate to high in natural fertility. The root zone is moderately deep, and it overlies a slowly permeable fragipan or clayey layer. The moisture-supplying capacity is moderate.

These soils are suited to most cultivated crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown year after year under high-level management. Under medium-level management, the most intensive cropping system that is suitable consists of 2 years of row crops and 1 year of meadow. Suitable pasture and meadow plants are Kentucky 31 tall fescue, redtop, red clover, alsike clover, Korean lespedeza, Kobe lespedeza, and Ladino clover, all of which can be grown under medium-level management. Alfalfa and orchardgrass can be grown under high-level management, but the stands are good for only 2 or 3 years.

Tillage is easy, but a seasonal high water table may prevent early planting. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. Wetness is the main limitation. The response to lime and fertilizer is good. Irrigating high-value crops may be advantageous.

CAPABILITY UNIT IIw–4

This capability unit consists of Newark silt loam, which is a nearly level, medium-textured somewhat poorly drained soil on flood plains. This soil occupies about 1.7 percent of the area surveyed. It is neutral or slightly acid, medium in content of organic matter, and moderate or moderately high in natural fertility. The root zone is deep, and permeability is moderate. The moisture-supplying capacity is high.

If drained, this soil is suited to most cultivated crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown year after year under high-level management. These crops, however, can be damaged by flooding. Under medium-level management, a cropping system consisting of 2 years of row crops and 2 years of meadow is suitable. Suitable pasture and meadow plants that tolerate slight wetness are Kentucky 31 tall fescue, redtop, red clover, alsike clover, Ladino clover Korean lespedeza, Kobe lespedeza, and reed canarygrass, all of which can be grown under medium-level management. Alfalfa and orchardgrass can be grown under high-level management, but the stands are good for only 2 or 3 years.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter.

Unless artificially drained, this soil commonly has a high water table several months of the year. In drained areas, the response to fertilizer is good. Lime is not ordinarily needed. Irrigating high-value crops may be advantageous, if there is adequate drainage.

CAPABILITY UNIT IIs–3

This capability unit consists of Egam silty clay loam, which is a nearly level, well drained or moderately well drained soil on flood plains. This soil occupies about 0.1 percent of the area surveyed. It is neutral or slightly acid, medium in content of organic matter, and high in natural fertility. The surface layer is sticky silty clay loam. It is difficult to work because of clodding. The subsoil is very sticky and plastic silty clay. The root zone is deep or moderately deep, and permeability is moderately slow. The moisture-supplying capacity is high.

This soil is suited to all row crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown year after year under high-level management. Under medium-level management, a cropping system consisting of 2 years of row crops and 1 year of meadow is suitable. All pasture and hay plants can be grown under medium-level or high-level management.

The range of moisture content within which this soil can be worked, without clodding or crusting, is narrow. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. This soil is flooded occasionally, but since the floods normally occur in winter, crops are seldom damaged. There is no hazard of erosion. The response to fertilizer is good, and lime is not normally needed. Irrigating high-value crops may be advantageous.

CAPABILITY UNIT IIIe–1

This capability unit consists of sloping, well-drained soils on uplands and stream terraces. These soils occupy about 11.7 percent of the area surveyed. They are medium acid or strongly acid, medium or low in content of organic matter, and moderate or high in natural fertility. The surface layer is medium-textured and friable, and the root zone is deep and permeable. The moisture-supplying capacity is moderately high or high.

These soils are suited to all cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are tobacco, corn, and small grain. Suitable pasture and meadow plants are Kentucky bluegrass, smooth bromegrass, Kentucky 31 tall fescue, orchardgrass, timothy, alfalfa, red clover, Ladino clover, white clover, and Korean lespedeza; all of which can be grown under medium-level or high-level management.

Tillage is easy. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is severe. The response to lime and fertilizer is good. Irrigating the high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices may be used to slow surface runoff and to control erosion. For example, in an area of Maury silt loam where the slope is 8 percent and 100 feet in length, a cropping system of 2 years of corn followed by 2 years of meadow can be used if the fields are contour farmed; if the first corn crop is used for silage and followed by a cover crop and the second corn crop is used for grain and the residue is left on the surface; and if the general level of management is high.

CAPABILITY UNIT IIIe–2

This capability unit consists of sloping, well-drained soils on uplands. These soils occupy about 8.5 percent of the area surveyed. They are medium acid or strongly acid, medium or low in content of organic matter, and moderately high or high in natural fertility. The surface soil is medium-textured and friable, and the subsoil either is clayey and plastic or has a fragipan in the lower part. The root zone is moderately deep or deep, and permeability is moderate or moderately slow. The moisture-supplying capacity is high or moderately high.

These soils are suited to all cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are tobacco, corn, and small grain. Suitable pasture and meadow plants are Kentucky bluegrass, orchardgrass, Kentucky 31 tall fescue, timothy, alfalfa, red clover, Ladino clover, white clover, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Tillage is easy. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is severe. The response to lime and fertilizer is good. Irrigating high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices may be used to slow runoff and to control erosion. For example, in an area of Lowell silt loam where the slope is 8 percent and 100 feet in length, a cropping system of 2 years of corn followed by 1 year of meadow can be used if the fields are contour farmed and the general level of management is high.

CAPABILITY UNIT IIIe–8

This capability unit consists of sloping, moderately well drained soils on uplands. These soils occupy about 1.6 percent of the area surveyed. They are medium acid or strongly acid, medium or low in content of organic matter, and moderate to high in natural fertility. The root zone is moderately deep to shallow. The moisture-supplying capacity is moderately high to moderately low. Permeability is limited by a clayey subsoil or by a fragipan in the lower part of the subsoil.

These soils are suited to most cultivated crops and pasture plants commonly grown in this county. Some of the cultivated crops are tobacco, corn, and small grain. Suitable pasture and meadow plants are Kentucky 31 tall fescue, Kentucky bluegrass, orchardgrass, timothy, Ladino clover, red clover, sericea lespedeza, Kobe lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management. Alfalfa can be grown under high-level management, but the stands are good for only 2 or 3 years.

Tillage is easy. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is severe. The response to lime and fertilizer is good. Irrigating the high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices may be used to slow runoff and to control erosion. For example, in an area of Mercer silt loam where the slope is 8 percent and 100 feet in length, a cropping system of 2 years of corn followed by 2 years of meadow can be used if the fields are contour farmed and the general level of management is high.

CAPABILITY UNIT IIIe–10

This capability unit consists of gently sloping, well-drained and somewhat excessively drained soils on uplands. These soils occupy about 1.7 percent of the area surveyed. They are neutral to medium acid, medium or low in content of organic matter, and moderate or moderately high in natural fertility. The root zone is moderately deep. The moisture-supplying capacity is moderately high, and permeability is moderate or moderately slow. If these soils are eroded, they are somewhat difficult to till, because of clodding.

These soils are suited to most cultivated crops, pasture plants, and hay plants commonly grown in this county. Some of the cultivated crops are tobacco, corn, and small grain. Suitable pasture and hay plants are orchardgrass, Kentucky bluegrass, Kentucky 31 tall fescue, timothy, alfalfa, Ladino clover, red clover, Kobe lespedeza, Korean lespedeza, and sericea lespedeza, all of which can be grown under medium-level or high-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The hazard of erosion in cultivated areas is severe. The response to fertilizer is good, and, in most places, lime is not needed. Irrigating the high-value crops may be advantageous.

Various combinations of cropping systems and conservation practices can be used to slow runoff and to control erosion. For example, in an area of McAfee silt loam, where the slope is 5 percent and 100 feet in length, a cropping system of 2 years of corn followed by 1 year of meadow can be used if the fields are contour farmed and the general level of management is high.

CAPABILITY UNIT IIIw–1

This capability unit consists of nearly level and gently sloping, somewhat poorly drained soils on stream terraces and uplands. These soils occupy about 0.5 percent of the area surveyed. They are strongly acid and are moderate or moderately low in natural fertility. The root zone is shallow or moderately deep. These soils have either a plastic, clayey subsoil that is moderately slow in permeability, or a compact, slowly permeable layer at a depth of about 20 inches. The moisture-supplying capacity is moderately low.

Unless artificially drained, these soils are poorly suited to most row crops and pasture plants commonly grown in this county. If adequately drained and otherwise well managed, they can be used for corn and small grain, but even if drained, they are poorly suited to tobacco. Kentucky 31 tall fescue, redtop, red clover, alsike clover, Ladino clover, Korean lespedeza, Kobe lespedeza, and reed canarygrass can be grown under medium-level or high-level management.

These soils are easy to till, but a seasonal high water table may prevent early plowing. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to fertilizer is fair, and lime is needed.

Under medium-level management, a cropping system of 1 year of row crops and 2 years of meadow can be used.

CAPABILITY UNIT IIIw–5

This capability unit consists of Melvin silt loam, which is a nearly level, poorly drained, medium-textured soil on flood plains. This soil occupies about 0.2 percent of the area surveyed. It is neutral or slightly acid, low in content of organic matter, and moderately low in natural fertility. The root zone is deep and moderately permeable. The moisture-supplying capacity is high.

Unless artificially drained, this soil is poorly suited to most row crops and pasture plants commonly grown in this county. If it is drained, corn and small grain can be grown under high-level management. Tobacco does not grow well on this soil, even after drainage. Orchardgrass, red clover, timothy, Korean lespedeza, Kobe lespedeza, redtop, Kentucky 31 tall fescue, reed canarygrass, alsike clover, and Ladino clover can be grown under medium-level or high-level management.

This soil is easy to work but a seasonal high water table may prevent plowing early in spring. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. If artificial drainage is provided, the response to fertilizer is fairly good. Lime normally is not needed.

This soil can be cultivated year after year under high-level management. Under medium-level management, a cropping system consisting of 2 years of row crops and 2 years of meadow can be used.

CAPABILITY UNIT IIIw–7

This capability unit consists of Lanton silty clay loam, which is a nearly level, poorly drained or somewhat poorly drained soil on flood plains. This soil occupies about 1.3 percent of the area surveyed. It is neutral or slightly acid, high in natural fertility, and high in content of organic matter. The surface layer is dark colored and somewhat clayey, and the subsoil is plastic and clayey. The root zone is moderately deep, and the permeability is moderately slow. The moisture-supplying capacity is high. The range of moisture content within which this soil can be worked, without clodding or crusting, is narrow.

Unless artificially drained, this soil is poorly suited to most row crops and pasture plants commonly grown in this county. If it is drained, corn and small grain can be grown under high-level management. Tobacco is not usually grown, because the soil is wet and fine textured. Kentucky bluegrass, smooth bromegrass, orchardgrass, timothy, Kentucky 31 tall fescue, reed canarygrass, redtop, alsike clover, Ladino clover, Korean lespedeza, and Kobe lespedeza can be grown under medium-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. If artificial drainage is provided, the response to fertilizer is good. Lime ordinarily is not needed.

Under high-level management, this soil can be cultivated year after year. Under medium-level management, a cropping system consisting of 2 years of row crops and 1 year of sod will maintain soil tilth and structure.

CAPABILITY UNIT IVe–1

This capability unit consists of Maury silt loam, 12 to 20 percent slopes, eroded, which is a strongly sloping, well-drained soil on uplands. This soil occupies about 0.2 percent of the area surveyed. It is medium acid or strongly acid, high in natural fertility, and low in content of organic matter. The moisture-supplying capacity is moderately high. This soil has a friable surface layer and a deep, moderately permeable root zone.

This soil is suited to most cultivated crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown under high-level management. Suitable pasture plants are Kentucky bluegrass, smooth bromegrass, alfalfa, Ladino clover, Kentucky 31 tall fescue, orchardgrass, red clover, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

This soil is easy to till. Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to lime and fertilizer is good. The hazard of erosion in cultivated areas is very severe.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, where the slope is 12 percent and 75 feet in length, a cropping system of 2 years of corn followed by 2 years of meadow can be used if the level of management is high.

CAPABILITY UNIT IVe–3

This capability unit consists of Lowell silt loam, 12 to 20 percent slopes, eroded, which is a strongly sloping, well drained to moderately well drained soil. This soil occupies about 0.2 percent of the area surveyed. It is medium acid or strongly acid, moderately high in natural fertility, and low in content of organic matter. The surface layer is medium textured and friable, and the subsoil is plastic and clayey. The root zone is moderately deep. Permeability is moderately slow, and the moisture-supplying capacity is moderately low.

This soil is suited to the row crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown under high-level management. Suitable pasture plants are Kentucky bluegrass, smooth bromegrass, alfalfa, Ladino clover, Kentucky 31 tall fescue, orchardgrass, red clover, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to lime and fertilizer is good. The hazard of erosion in cultivated areas is very severe.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, where the slope is 12 percent and 75 feet in length, a cropping system of 1 year of corn followed by 3 years of meadow can be used if the field is contour farmed, if corn residue is left on the surface, and if the level of management is high.

CAPABILITY UNIT IVe–6

This capability unit consists of sloping, well drained to somewhat excessively drained soils on uplands. These soils occupy about 8.5 percent of the area surveyed. They are neutral to medium acid, low or medium in content of organic matter, and moderate or moderately high in natural fertility. If these soils are eroded, they are somewhat difficult to till because of clodding. These soils are moderately deep to bedrock. The moisture-supplying capacity is moderately low to moderately high.

These soils are suited to most row crops and pasture plants (fig. 13) commonly grown in this county. Tobacco, corn, and small grain can be grown under high-level management. Suitable pasture plants are Kentucky bluegrass, timothy, alfalfa, White Dutch clover, red clover, Kentucky 31 tall fescue, orchardgrass, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to fertilizer is good. Lime is needed in some places. The hazard of erosion in cultivated areas is very severe.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, in an area of McAfee silt loam where the slope is 8 percent and 75 feet in length, a cropping system of 1 year of corn followed by 3 years

Figure 13.—**In the foreground, pasture on eroded Salvisa silty clay loam, which is in capability unit IVe–6; in the background, pasture on a soil of capability unit VIe–1.**

of meadow can be used if the field is contour farmed and if the level of management is high.

CAPABILITY UNIT IVe–9

This capability unit consists of Maury silty clay loam, 6 to 12 percent slopes, severely eroded, which is a sloping, well-drained soil on uplands. This soil occupies about 0.2 percent of the area surveyed. It is medium acid or strongly acid, very low in content of organic matter, and moderate in natural fertility. Most of the original surface soil has been removed by erosion. The present surface layer is sticky when wet, and as a result, the range of moisture content within which it can be tilled, without clodding or crusting, is narrow. The subsoil is clayey and permeable. The root zone is deep. The moisture-supplying capacity is moderately high.

This soil is suited to the row crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown under high-level management. Suitable pasture plants are Kentucky bluegrass, orchardgrass, timothy, alfalfa, White Dutch clover, red clover, Kentucky 31 tall fescue, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to lime and fertilizer is good. The hazard of erosion in cultivated areas is very severe.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, where the slope is 8 percent and 75 feet in length, a cropping system of 2 years of corn followed by 3 years of meadow can be used if the field is contour farmed and if the level of management is high.

CAPABILITY UNIT IVe–11

This capability unit consists of Lowell silty clay loam, 6 to 12 percent slopes, severely eroded, which is a sloping, well drained to moderately well drained soil on uplands. This soil occupies about 0.5 percent of the area surveyed. It is medium acid or strongly acid and moderate in natural fertility. The root zone is moderately deep, and permeability is moderately slow. Erosion has removed nearly all of the original surface layer. The present surface layer is sticky when wet. As a result, the range of moisture content within which this soil can be tilled, without clodding or crusting, is narrow. The subsoil is very plastic and clayey. The moisture-supplying capacity is moderately low.

This soil is suited to most row crops and pasture plants commonly grown in this county. Tobacco, corn, and small grain can be grown under high-level management. Suitable pasture plants are Kentucky bluegrass, orchardgrass, timothy, red clover, Kentucky 31 tall fescue, sericea lespedeza, and Korean lespedeza, all of which can be grown under medium-level or high-level management. Alfalfa does not grow well, even under high-level management.

Cover crops, sod crops, green-manure crops, and crop residue can be used to help maintain and improve workability and to supply organic matter. The response to fertilizer is fair. The hazard of erosion in cultivated areas is very severe.

Various combinations of cropping systems and conservation practices can be used to slow surface runoff and to control erosion. For example, where the slope is 8 percent and 75 feet in length, a cropping system of 1 year of corn followed by 4 years of meadow can be used if the field is contour farmed and if the level of management is high.

CAPABILITY UNIT VIe–1

This capability unit consists of strongly sloping and moderately steep, well drained or somewhat excessively drained soils. These soils occupy about 3 percent of the area surveyed. They are neutral, medium acid, or strongly acid; are very low or low in content of organic matter; and are moderate or moderately high in natural fertility. They are moderately deep or deep to bedrock and have a moderately deep or shallow root zone. The surface layer is somewhat clayey, and the subsoil is clayey, very sticky, and plastic. The moisture-supplying capacity is moderately low or low.

These soils are not suited to cultivated crops, but they are suited to pasture and hay plants. Kentucky 31 tall fescue, sericea lespedeza, and Korean lespedeza can be grown under medium-level management. Less suitable plants are Kentucky bluegrass, orchardgrass, timothy, and red clover, which can be grown under high-level management. Alfalfa does not grow well, even under high-level management. The pasture mixture selected should be one that yields a satisfactory amount of forage, provides a ground cover for the control of erosion, and does not require frequent renovation.

CAPABILITY UNIT VIe–4

This capability unit consists of sloping or strongly sloping, well drained or somewhat excessively drained, severely eroded soils. These soils occupy about 0.8 percent of the area surveyed. They are neutral to medium acid, very low in content of organic matter, and moderate to low in natural fertility. The root zone is shallow or moderately deep. The surface layer and subsoil are clayey, very sticky, and plastic. Rock outcrops are fairly common.

The moisture-supplying capacity is low, and permeability is moderate or moderately slow.

These soils are not suited to cultivated crops, because the hazard of erosion is high. They are suited to pasture and hay plants. Kentucky 31 tall fescue and sericea lespedeza can be grown under medium-level or high-level management. Kentucky bluegrass, orchardgrass, timothy, red clover, sweetclover, and Korean lespedeza are short lived. The mixture selected should be one that will yield a satisfactory amount of forage and provide a ground cover adequate for the control of erosion and that will not require frequent renovation. Pastures should not be grazed continuously. They should be so managed that the vegetation is always at least 3 inches high. The response to fertilizer is fair.

CAPABILITY UNIT VIs–1

This capability unit consists of sloping and strongly sloping, somewhat excessively drained soils on uplands. These soils occupy about 1.7 percent of the area surveyed. They are slightly acid to slightly alkaline, low or medium in content of organic matter, and moderate in natural fertility. The surface layer is somewhat clayey, and the subsoil is clayey and has strong structure. Loose rock is common throughout the profile, and about 10 to 25 percent of the surface consists of rock outcrops or of a very thin layer of soil over rock. The depth to limestone bedrock is about 10 to 24 inches. The moisture-supplying capacity is low or very low.

These soils are not suited to cultivated crops, because of erosion and because rock interferes with tillage and preparation of seedbeds for hay crops. They are suited to pasture plants, chiefly Kentucky 31 tall fescue and sericea lespedeza. Kentucky bluegrass, orchardgrass, timothy, red clover, sweetclover, and Korean lespedeza can be grown under high-level management, but the stands are not vigorous and they are short lived.

The pasture mixture selected should be one that will yield a satisfactory amount of forage and provide a ground cover adequate for the control of erosion and that will not require frequent renovation. Pastures should not be grazed continuously. They should be so managed that the vegetation is always at least 3 inches high.

CAPABILITY UNIT VIIe–1

This capability unit consists of Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded, which is a steep, somewhat excessively drained soil. This soil occupies about 0.2 percent of the area surveyed. It is medium acid or strongly acid, low in content of organic matter, and moderate in natural fertility. The root zone is deep. Permeability is moderate or moderately rapid, and the moisture-supplying capacity is low. The surface layer is friable, and the subsoil is friable to firm. Siltstone flags, 6 to 12 inches in diameter, are common.

This soil is suited only to pasture or woodland. The choice of suitable forage plants is limited. Kentucky 31 tall fescue, sericea lespedeza, and Korean lespedeza can be grown only under high-level management. Kentucky bluegrass and alfalfa can be grown, but they are short lived. The pasture mixture selected should be one that will yield a satisfactory amount of forage and provide a ground cover adequate for the control of erosion and that will not need to be renovated frequently.

The steep slopes make the operation of farm machinery difficult, and consequently, mowing and spreading fertilizer and lime are costly and hazardous. Pastures should not be grazed continuously. They should be so managed that the vegetation is always at least 3 inches high. The response to fertilizer is fair.

CAPABILITY UNIT VIIs–2

This capability unit consists of strongly sloping to steep, somewhat excessively drained soils on uplands. These soils occupy about 3.0 percent of the area surveyed. They are slightly acid, medium acid, or slightly alkaline, and are moderate to low in natural fertility. The surface layer is silty clay loam or silty clay, and the subsoil is silty clay or clay. The depth to bedrock is about 10 to 24 inches. Rock outcrops make up about 10 to 25 percent of the surface, and rock fragments are common throughout the profile. Permeability is moderate, and the moisture-supplying capacity is very low.

These soils are suited only to limited use for grazing and to woodland. Kentucky 31 tall fescue and sericea lespedeza are the only suitable pasture plants.

A ground cover adequate for control of erosion is needed. The slope makes the operation of farm machinery difficult and hazardous. Pastures should not be grazed continuously. They should be so managed that the vegetation is always at least 3 inches high.

Estimated Yields

Table 2 shows the estimated average acre yields of the principal crops on the soils in Fayette County under two levels of management. In columns A are average yields based on medium-level management, and in columns B are average yields based on high-level management.

High-level management includes (1) use of suitable, high-yielding crop varieties; (2) proper seeding rates, inoculation of legumes, proper planting dates, and efficient harvesting methods; (3) control of weeds, insects, and plant diseases; (4) fertilization in accordance with the current recommendations of the University of Kentucky Agricultural Experiment Station and the needs determined through soil tests; (5) adequate liming; (6) drainage of naturally wet soils; (7) crop rotations that help to control erosion, maintain soil structure and tilth, and replenish the supply of organic matter; (8) contour tillage, terracing, contour stripcropping, grassed waterways, and other applicable conservation measures; (9) use of cover crops and crop residue; (10) protection from overgrazing and use of all applicable pasture management practices; (11) minimum tillage; and (12) interseeding of winter crops in row crops.

This high-level management is not considered the maximum level possible, but it is one that many farmers will find practical, and one that will result in sustained high yields.

The medium level of management includes the minimum of fertilization, treatment, and management that will keep the soils from deteriorating and produce yields sufficient for some profit.

Management may be deficient in one or more of the high-level practices without impairing production; however, if the deficiency is serious, production will decrease.

TABLE 2.—*Estimated average acre yields of crops*

[Yields in columns A are those to be expected under medium-level management; those in columns B, under high-level management. Dashes indicate that the soil is considered unsuitable for the crop or the crop is not commonly grown on the soil]

Soils	Corn (grain)		Corn (silage)		Tobacco	Wheat		Alfalfa-grass hay		Red clover-grass hay		Lespedeza hay		Pasture	
	A	B	A	B	B [1]	A	B	A	B	A	B [2]	A	B	A	B
	Bu.	*Bu.*	*Tons*	*Tons*	*Lb.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]
Armour silt loam, 0 to 2 percent slopes	90	130	17	25	2,700	36	50	3.2	4.5	2.5	3.5	1.8	2.5	145	245
Armour silt loam, 2 to 6 percent slopes	90	125	17	24	2,650	35	48	3.2	4.5	2.5	3.5	1.8	2.5	145	240
Armour silt loam, 6 to 12 percent slopes	85	120	16	23	2,500	34	46	3.0	4.2	2.3	3.3	1.7	2.4	140	230
Braxton silt loam, 2 to 6 percent slopes	80	110	15	21	2,450	32	42	2.8	4.0	2.2	3.2	1.7	2.3	140	230
Braxton silt loam, 6 to 12 percent slopes, eroded	60	90	11	17	2,150	24	34	2.4	3.5	2.0	2.9	1.4	2.0	125	210
Captina silt loam, 0 to 2 percent slopes	60	90	11	17	2,100	24	34	1.4	2.5	2.0	2.9	1.6	2.2	130	220
Captina silt loam, 2 to 6 percent slopes	60	90	11	17	2,150	25	35	1.5	2.6	2.1	3.0	1.6	2.2	125	215
Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded														75	125
Culleoka silt loam, 6 to 12 percent slopes, eroded	55	85	10	16	1,900	22	32	2.0	3.0	1.8	2.7	1.2	1.7	115	195
Donerail silt loam, 0 to 2 percent slopes	70	105	13	20	2,150	29	39	1.8	2.8	2.2	3.1	1.7	2.3	135	225
Donerail silt loam, 2 to 6 percent slopes	70	105	13	20	2,200	30	40	1.9	2.9	2.2	3.1	1.7	2.3	130	220
Donerail silt loam, 6 to 12 percent slopes	65	100	12	19	2,100	28	38	1.8	2.8	2.1	3.0	1.6	2.2	125	215
Egam silt loam	80	115	15	22	2,250	33	44	2.8	4.0	2.2	3.1	1.5	2.4	140	235
Egam silty clay loam	75	110	14	21	2,150	32	42	2.3	3.8	2.0	2.9	1.5	2.3	135	230
Fairmount very rocky silty clay loam, 6 to 20 percent slopes														70	125
Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded														35	70
Fairmount very rocky silty clay loam, 20 to 50 percent slopes														55	100
Huntington silt loam	90	130	17	25	2,700	36	50	3.2	4.5	2.5	3.5	1.8	2.5	145	245
Lanton silty clay loam	65	110	12	21		24	40				2.7	1.6	2.3	120	220
Lawrence silt loam	40	70	7	13							1.9	1.2	1.9	110	190
Lindside silt loam	85	120	16	23	2,400	34	46	2.7	3.9	2.2	3.3	1.7	2.4	145	245
Loradale silt loam, 2 to 6 percent slopes	80	115	15	22	2,500	33	44	2.8	4.0	2.2	3.2	1.7	2.3	140	230
Loradale silt loam, 6 to 12 percent slopes	75	105	14	20	2,350	30	40	2.7	3.9	2.2	3.1	1.6	2.2	135	220
Loradale silt loam, 6 to 12 percent slopes, eroded	70	95	12	18	2,200	26	36	2.6	3.7	2.1	3.0	1.4	2.0	125	210
Loudon silt loam, phosphatic, 2 to 6 percent slopes	45	75	8	14							2.0	1.4	2.0	115	190
Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded	35	60	6	11							1.7	1.2	1.7	100	165
Lowell silt loam, 2 to 6 percent slopes	75	105	14	20	2,300	30	40	2.5	3.6	2.2	3.1	1.6	2.2	135	225
Lowell silt loam, 6 to 12 percent slopes, eroded	60	90	11	17	2,000	24	34	2.3	3.2	1.9	2.8	1.4	2.0	120	205
Lowell silt loam, 12 to 20 percent slopes, eroded	45	75	8	14		19	28	2.1	3.0	1.7	2.6	1.2	1.8	115	195
Lowell silty clay loam, 6 to 12 percent slopes, severely eroded	35	60	6	11		15	22	1.5	2.4	1.3	2.1	.9	1.5	95	170
Lowell silty clay loam, 12 to 20 percent slopes, severely eroded									2.3		1.9			90	160
Maury silt loam, 0 to 2 percent slopes	90	125	17	24	2,700	35	48	3.2	4.5	2.5	3.5	1.8	2.5	145	240
Maury silt loam, 2 to 6 percent slopes	85	120	16	23	2,650	34	46	3.2	4.4	2.4	3.4	1.8	2.4	140	235
Maury silt loam, 2 to 6 percent slopes, eroded	75	105	14	20	2,450	30	40	3.0	4.2	2.3	3.3	1.7	2.3	135	225
Maury silt loam, 6 to 12 percent slopes	80	110	15	21	2,500	32	42	3.0	4.3	2.3	3.3	1.7	2.3	135	225
Maury silt loam, 6 to 12 percent slopes, eroded	70	100	13	19	2,300	28	38	2.8	4.0	2.2	3.2	1.5	2.1	125	215
Maury silt loam, 12 to 20 percent slopes, eroded	60	90	11	17	2,050	24	34	2.6	3.7	2.1	3.0	1.3	1.9	120	205
Maury silty clay loam, 6 to 12 percent slopes, severely eroded	55	80	10	15	1,900	20	30	2.4	3.4	1.8	2.7	1.0	1.6	110	185
McAfee silt loam, 2 to 6 percent slopes	60	90	11	17	2,000	24	34	2.4	3.5	1.9	2.8	1.2	1.7	115	190
McAfee silt loam, 6 to 12 percent slopes	50	80	9	15	1,850	20	30	2.2	3.3	1.8	2.7	1.1	1.5	105	175
McAfee silty clay, 6 to 12 percent slopes, severely eroded														75	125
McAfee silty clay, 12 to 20 percent slopes, severely eroded														70	115
McAfee silty clay loam, 2 to 6 percent slopes, eroded	45	75	8	14	1,750	19	28	2.1	3.1	1.6	2.5	1.0	1.4	100	170

See footnotes at end of table.

TABLE 2.—*Estimated average acre yields of crops*—Continued

Soils	Corn (grain)		Corn (silage)		Tobacco	Wheat		Alfalfa-grass hay		Red clover-grass hay		Lespedeza hay		Pasture	
	A	B	A	B	B [1]	A	B	A	B	A	B [2]	A	B	A	B
	Bu.	*Bu.*	*Tons*	*Tons*	*Lb.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]
McAfee silty clay loam, 6 to 12 percent slopes, eroded	40	65	7	12	1,500	16	24	1.9	2.9	1.5	2.3	.8	1.2	95	160
McAfee silty clay loam, 12 to 20 percent slopes, eroded									2.5		2.0			90	150
McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded														80	135
McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded														70	115
McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded														60	100
Melvin silt loam	45	85	8	16								1.0	1.8	100	205
Mercer silt loam, 0 to 2 percent slopes	60	90	11	17	2,050	23	33	1.4	2.5	1.8	2.7	1.6	2.2	125	220
Mercer silt loam, 2 to 6 percent slopes	60	90	11	17	2,100	24	34	1.5	2.6	1.9	2.8	1.6	2.2	120	215
Mercer silt loam, 2 to 6 percent slopes, eroded	50	80	9	15	1,900	20	30	1.2	2.3	1.6	2.5	1.4	2.0	115	200
Mercer silt loam, 6 to 12 percent slopes	55	85	10	16	1,950	20	32	1.3	2.4	1.7	2.6	1.5	2.1	115	205
Mercer silt loam, 6 to 12 percent slopes, eroded	40	70	7	13	1,750	17	26	1.0	2.1	1.4	2.3	1.3	1.9	105	190
Newark silt loam	65	105	12	20	2,000	22	38				2.7	1.4	2.1	125	225
Russellville silt loam, 2 to 6 percent slopes	75	105	14	20	2,300	30	40	2.4	3.5	2.2	3.1	1.6	2.2	135	225
Russellville silt loam, 6 to 12 percent slopes, eroded	60	90	11	17	1,950	24	34	2.2	3.2	1.9	2.8	1.4	2.0	120	205
Salvisa silty clay, 6 to 12 percent slopes, severely eroded														75	125
Salvisa silty clay loam, 2 to 6 percent slopes, eroded	40	65	7	12	1,600	17	24	2.0	3.0	1.5	2.4	1.0	1.4	100	170
Salvisa silty clay loam, 6 to 12 percent slopes, eroded	30	55	5	10	1,400	15	20	1.8	2.8	1.4	2.2	.8	1.2	95	160
Salvisa silty clay loam, 12 to 30 percent slopes, eroded									2.3		1.9			85	140

[1] Tobacco is a high-value crop and is nearly always grown under high-level management. Yields under medium-level management are not estimated.

[2] Yields are those to be expected in the second year.

[3] Cow-acre-days is a term used to express the carrying capacity of pasture. It is the number of animal units carried per acre multiplied by the number of days the pasture is grazed during a single grazing season without injury to the sod. An acre of pasture that provides 30 days of grazing for two cows has a carrying capacity of 60 cow-acre-days.

Wildlife

Food, cover, and water are the essentials of wildlife habitats. Habitats can be created, improved, or maintained by planting suitable vegetation, or by managing the existing vegetation, or both. By evaluating the various combinations of plants that can be produced on a soil, the suitability of a soil as a habitat for a particular class of wildlife can be determined. Table 3 shows the relative suitability of each soil of Fayette County for the elements of wildlife habitats. It also shows the relative value of each soil as a habitat for three general classes of wildlife: openland, woodland, and wetland.

The numerical ratings in table 3 are to be interpreted as follows:

1.—Well suited. Habitats generally are easily created, improved, or maintained. There are few or no soil limitations, and results are fairly certain.

2.—Suited. Habitats usually can be created, improved, or maintained, but there are moderate soil limitations that affect management of habitats. Moderate intensity of management and fairly frequent attention may be required to produce satisfactory results.

3.—Poorly suited. Habitats usually can be created, improved, or maintained, but soil limitations are rather severe. Management of habitats may be difficult and expensive, and results may or may not be satisfactory.

4.—Unsuited. Habitats cannot be created, improved, or maintained, or it is impractical to do so under prevailing conditions. Unsatisfactory results are probable.

In table 3 all the soils are rated according to their suitability for the following six groups of plants and two kinds of water developments.

Grain and seed crops.—These are agricultural grains and seed-producing annuals that provide food for wildlife. Examples are corn, sorghum, wheat, oats, millet, buckwheat, soybeans, and sunflowers.

Grasses and legumes.—These are domestic perennial grasses and herbaceous legumes that are established by planting and that furnish food and cover. Examples are fescue, bromegrass, bluegrass, timothy, redtop, orchard-

TABLE 3.—*Ratings of soils for elements of wildlife habitat and kinds of wildlife*

[A rating of 1 denotes well suited or above average; 2 denotes suited or average; 3 denotes poorly suited or below average; and 4 denotes unsuited]

Soil series and map symbols	Elements of wildlife habitat								Kinds of wildlife		
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woodland plants	Coniferous woodland plants	Wetland food and cover plants	Shallow water developments	Excavated ponds	Openland wildlife	Woodland wildlife	Wetland wildlife
Armour:											
ArA	1	1	1	1	3	4	4	4	1	1	4
ArB, ArC	2	1	1	1	3	4	4	4	1	1	4
Braxton:											
BrB, BrC2	2	1	1	1	3	4	4	4	1	1	4
Captina:											
CaA	2	1	1	1	3	3	3	3	1	1	3
CaB	2	1	1	1	3	4	4	4	1	1	4
Cullcoka:											
CfF2	4	4	2	1	2	4	4	4	3	2	4
CsC2	2	1	1	1	3	4	4	4	1	1	4
Donerail:											
DoA	2	1	1	1	3	3	3	3	1	1	3
DoB, DoC	2	1	1	1	3	4	4	4	1	1	4
Egam:											
Ea	1	1	1	1	3	4	4	4	1	1	4
Ec	2	1	1	1	3	4	4	4	1	1	4
Fairmount:											
FaD, FaF	4	3	2	2	2	4	4	4	3	2	4
FaD3	4	3	3	2	1	4	4	4	3	2	4
Huntington:											
Hu	1	1	1	1	3	4	4	4	1	1	4
Lanton:											
La	3	2	2	1	2	2	3	4	2	1	3
Lawrence:											
Lc	3	2	2	2	3	2	2	2	2	3	2
Lindside:											
Ld	2	1	1	1	3	3	3	3	1	1	3
Loradale:											
LoB, LoC, LoC2	2	1	1	1	3	4	4	4	1	1	4
Loudon:											
LpB	2	2	1	1	3	3	4	4	1	2	4
LpC2	2	2	1	1	3	4	4	4	1	2	4
Lowell:											
LwB, LwC2	2	1	1	1	3	4	4	4	1	1	4
LwD2, LyC3	3	2	1	1	3	4	4	4	2	2	4
LyD3	4	3	1	1	3	4	4	4	3	2	4
Maury:											
MlA	1	1	1	1	3	4	4	4	1	1	4
MlB, MlB2, MlC, MlC2	2	1	1	1	3	4	4	4	1	1	4
MlD2, MmC3	3	2	1	1	3	4	4	4	2	2	4
McAfee:											
MnB, MnC	2	1	1	1	3	4	4	4	1	1	4
MoC3, MoD3	4	2	2	2	2	4	4	4	3	2	4
MpB2, MpC2	2	1	1	1	3	4	4	4	1	1	4
MpD2	4	2	1	1	3	4	4	4	2	2	4
MrD2, MrE2	4	3	2	2	2	4	4	4	3	2	4
MsD3	4	3	3	2	2	4	4	4	3	3	4

TABLE 3.—*Ratings of soils for elements of wildlife habitat and kinds of wildlife*—Continued

Soil series and map symbols	Elements of wildlife habitat								Kinds of wildlife		
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woodland plants	Coniferous woodland plants	Wetland food and cover plants	Shallow water developments	Excavated ponds	Openland wildlife	Woodland wildlife	Wetland wildlife
Melvin:											
Mt	3	2	2	1	2	2	3	4	2	1	3
Mercer:											
MuA	2	1	1	1	3	3	3	3	1	1	3
MuB, MuB2, MuC, MuC2	2	1	1	1	3	4	4	4	1	1	4
Newark:											
Ne	2	1	1	1	3	3	2	3	1	1	3
Rock land:											
Rk	4	4	3	3	1	4	4	4	4	3	4
Russellville:											
RuB, RuC2	2	1	1	1	3	4	4	4	1	1	4
Salvisa:											
SaC3	4	2	2	2	2	4	4	4	3	2	4
ScB2, ScC2	2	1	1	1	3	4	4	4	1	1	4
ScE2	4	2	1	1	3	4	4	4	2	2	4

grass, reed canarygrass, clover, trefoil, alfalfa, and panicgrass.

Wild herbaceous upland plants.—These are native or introduced perennial grasses and forbs that provide food and cover and that are established mainly through natural processes. Examples are bluestem, indiangrass, wheatgrass, ryegrass, oatgrass, pokeweed, strawberries, lespedeza, beggarweed, wild beans, nightshade, goldenrod, and dandelions.

Hardwood woodland plants.—These are nonconiferous trees, shrubs, and woody vines that produce fruits, nuts, buds, catkins, twigs (browse), or foliage used extensively as food by wildlife. They are commonly established through natural processes but may be planted. Examples are oak, beech, cherry, hawthorn, dogwood, viburnum, maple, birch, poplar, grape, honeysuckle, blueberry, brier, greenbrier, autumn olive, and multiflora rose.

Coniferous woodland plants.—These are conebearing trees and shrubs that commonly are established through natural processes but also may be planted. They are important mainly as cover but may furnish food in the form of browse, seeds or fruitlike cones. Examples are spruce, pine, white-cedar, hemlock, balsam fir, redcedar, juniper, and yew.

Wetland food and cover plants.—These are annual and perennial wild herbaceous plants that grow in moist to wet sites. Examples are smartweed, millet, bulrush, spikesedge, rushes, sedges, burreeds, wildrice, rice cutgrass, mannagrass, and cattails. Submerged and floating aquatics are not included.

Shallow water developments.—These are impoundments or excavations in which the water generally is not more than 6 feet deep. Examples are areas behind low dikes and levees; shallow dugouts; level ditches; and devices for water-level control in marshy drainageways or channels.

Excavated ponds.—These are dug-out areas or combination dug-out and dammed areas in which the water is of suitable quality, of adequate depth, and of ample quantity to provide an environment favorable for fish and wetland wildlife. Such ponds need to have a surface area of at least a quarter of an acre, an average depth of 6 feet over at least a fourth of the area, and a dependable source of water.

The three general classes of wildlife for which the soils are rated are as follows:

Openland wildlife.—This class includes birds and mammals that normally make their homes on cropland, pastures, meadows, lawns, and areas overgrown with grasses, herbs, and shrubby plants. Examples are quail, meadowlarks, field sparrows, doves, cottontail rabbits, red foxes, and woodchucks.

Woodland wildlife.—This class includes birds and mammals that normally make their homes in wooded areas of hardwoods, conifers, or a mixture of both. Examples are ruffed grouse, woodcock, thrushes, vireos, scarlet tanagers, gray squirrels, gray fox, white-tailed deer, raccoon, and wild turkey.

Wetland wildlife.—This class includes birds and mammals that normally make their homes in streams, ponds, marshes, or swamps. Examples are ducks, geese, herons, shore birds, mink, muskrat, and beaver.

Engineering Applications [2]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of highways, airports, pipelines, building foundations, water storage facilities, erosion control structures, drainage systems, and sewage disposal systems. The soil properties most important to engineers are shear strength, drainage, grain size, plasticity, and permeability to water. Shrink-swell characteristics, depth to water table, depth to bedrock, topography, available water capacity, flooding hazard, and degree of acidity or alkalinity are also important.

Some of the soil properties most important in engineering, and information about their behavior when used for engineering, are shown in tables 4 and 5. The information can be used by engineers, along with other information in this survey, to—

1. Make studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils, for use in planning agricultural drainage systems, farm ponds, irrigation systems, diversion terraces, and other structures for conserving soil and water.
3. Make preliminary evaluations that will aid in selecting locations for highways, airports, pipelines, and cables and in planning detailed investigations at the selected locations.
4. Locate sources of sand and gravel for use in construction.
5. Correlate performance of engineering structures with soil mapping units, and develop information that will be useful in designing and maintaining other engineering structures.
6. Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
7. Supplement the information obtained from other published maps, reports, and aerial photographs in making maps and reports that can be readily used by engineers.
8. Develop preliminary estimates for construction purposes pertinent to the particular area.

With the use of the soil map for identification, the engineering interpretations reported here can be useful for many purposes. It should be emphasized that they do not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads or deep excavations. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that can be expected.

Other parts of this survey, particularly the sections "Descriptions of Soils" and "Formation, Classification, and Morphology of Soils," contain information that is useful to engineers.

Some of the terms used by soil scientists may be unfamiliar to engineers, and some words have special meanings in soil science. Many of these terms are defined in the Glossary at the back of this publication.

[2] By WILLIAM M. ADAMS, civil engineer, Soil Conservation Service.

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Engineering Classification Systems

Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (*1*).[3] In this system soil materials are classified in seven principal groups. The groups range from A–1, which consists of gravelly soils of high bearing capacity, to A–7, which is made up of clay soils of low strength when wet.

The relative engineering values of the soils within each group are indicated by group index numbers. Group index numbers range from 0 for the best material to 20 for the poorest. The group index number is shown, in parentheses, following the soil group symbol, thus: A–1(0).

The seven basic groups are divided into two major classes: granular soils, in which 35 percent or less of the soil material consists of particles small enough to pass through a number 200 sieve; and silt-clay soils, in which more than 35 percent consists of particles small enough to pass through a number 200 sieve.

The soils of groups A–1, A–2, and A–3 are granular. A–1 soils are well-graded mixtures of coarse to fine particles and have a nonplastic or only slightly plastic soil binder. A–2 soils may be poorly graded and may have inferior binder material. Groups A–1 and A–2 may be subdivided according to the characteristics of the binder material. A–3 soils are sands that are deficient in binder and in coarse material.

The soils of groups A–4, A–5, A–6, and A–7 are silty or clayey, depending on the plasticity index. If the plasticity index is 10 or less, the soil is silty; if it is more than 10, the soil is clayey. A–4 soils are composed predominantly of silt and contain only moderate to small amounts of sticky, colloidal clay. When dry, they provide a firm riding surface, with little rebound after loading. When they absorb water rapidly, they expand and lose stability. They are subject to frost heaving. A–5 soils are similar to A–4 soils, but some A–5 soils are very poorly graded and have elastic properties and very low stability. A–6 soils are composed predominantly of clay and contain moderate to small amounts of coarse material. They have good bearing capacity when compacted to the maximum practical density, but they lose this capacity when they absorb moisture. A–7 soils are composed predominantly of clay, but they are elastic because they contain silt particles of uniform size, organic matter, mica flakes, or lime. At certain moisture contents, they deform quickly under load and rebound when the load is removed. Group A–7 may be subdivided according to the characteristics of the binder material.

The Unified soil classification system (*7*), developed by the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation, is based on the classification of soils according to their texture, their plasticity, and their performance as engineering construction material. The properties that form the basis of soil identification are (1) percentage of gravel, sand, and fines (fines are particles that will pass through a number 200 sieve); (2) grain-size distribution; and (3) plasticity and compressibility characteristics. The soils are divided into three classes: coarse-grained soils, fine-grained soils, and highly organic soils.

In coarse-grained soils, 50 percent or less of the soil

[3] Italic numbers in parentheses refer to Literature Cited, p. 60.

material consists of particles small enough to pass through a number 200 sieve (0.074 millimeter). Coarse-grained soils are subdivided into gravels (G) and sands (S). The gravels are those in which the greater percentage of the coarse fraction (particles too large to pass through a number 200 sieve) consists of particles large enough to be retained on a number 4 sieve (4.76 millimeters), and the sands are those in which the greater portion consists of particles small enough to pass through a number 4 sieve. The soils in each of these two groups are further classified on the basis of the amount of fines and of grain-size distribution. The Unified symbols for gravel soils are GW (well graded), GP (poorly graded), GM (silty), and GC (clayey); those for sands are SW (well graded), SP (poorly graded), SM (silty), and SC (clayey).

The U.S. Department of Agriculture system of classifying soils according to texture is primarily for agricultural use, but texture is important in engineering, also. Texture refers to the relative proportions of the various sized individual soil grains in a mass of soil. Classes of soil texture are based on different combinations of sand (particles 2.0 millimeters to 0.05 millimeter in diameter), silt (0.05 to 0.002 millimeter), and clay (less than 0.002 millimeter). The basic classes, in order of increasing proportions of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. Those classes with the term "sand" in the name are subdivided according to whether the sand is very fine, fine, coarse, or very coarse. "Gravelly" refers to soils that contain pebbles up to 3 inches in diameter, and "stony" to soils that contain stones more than 10 inches in diameter. Shaly soils contain flattened fragments of shale that are less than 6 inches long along the longer axis. Flaggy soils contain relatively thin fragments, 6 to 15 inches long, of sandstone, limestone, slate, or shale.

In fine-grained soils, more than 50 percent of the soil material consists of particles small enough to pass through a number 200 sieve. Fine-grained soils are subdivided into silts (M) and clays (C), depending on their liquid limit and plasticity index. Each of these groups is further subdivided according to whether the liquid limit is relatively low (L) or high (H). The Unified symbols for silts are ML and MH; those for clays are CL and CH. Also in the fine-grained group are two classes of soils that contain organic matter. The symbol OL identifies soils that are of low plasticity and have a liquid limit of less than 50. The symbol OH identifies soils that are of medium to high plasticity and have a liquid limit greater than 50.

The highly organic soils generally are highly compressible and have characteristics that make them undesirable for construction purposes. They are identified by the symbol Pt.

Engineering Properties of Soils

To make the best use of the soil maps and the soil surveys, engineers need to know certain properties of the soil materials and the in-place condition of the soils. Table 4 (page 34) gives estimates of significant properties and of the engineering and agricultural classifications of the soils in Fayette County. The estimates are based on the results of laboratory tests, on observations made in the field, and on experience with the use of the soils in engineering structures. Estimates are given for each significant layer of a typical profile. More complete descriptions of the profiles are given in the section "Descriptions of Soils."

Depth to rock, as used in table 4, refers to the depth to noncompressible material, which in this county may be shale, limestone, or siltstone. Depth to the seasonal high water table refers to the highest level at which the ground water stands for a significant period of time.

Permeability refers to the rate at which water moves downward through the undisturbed soil; it depends largely on the texture and structure of the soil. Available water capacity refers to the amount of water held in the soil between a tension of ⅓ atmosphere (field capacity) and a tension of 15 atmospheres (the wilting point); it represents the amount of water that plants can obtain from a given soil.

Reaction refers to the acidity or alkalinity of the soil, expressed in terms of pH. A pH of 7.0 is neutral; values of less than 7.0 indicate acidity, and values of more than 7.0 indicate alkalinity. The pH values given in table 4 are based on quick tests made at the time the soils were identified.

Shrink-swell potential is an indication of the volume change that can be expected if there is a change in moisture content. It depends largely on the amount and type of clay in the soil. In general, soils classified as CH or A–7 have a high shrink-swell potential. Clean sands and gravels (single grain) and other soils that contain only a small amount of nonplastic or slightly plastic soil material have a low shrink-swell potential.

Engineering Interpretations

The ratings and comments in table 5 (page 38) are based on estimates given in table 4, on field observation of the soils, and on experience with the same kinds of soils in other counties.

Frost action refers to the heave caused as ice lenses form in a soil and the subsequent loss of strength caused by the addition of moisture to the soil as the ice lenses thaw. Frost action depends on the amount of water in the soil during the freezing period and the length of the freezing period.

Topsoil is soil material suitable for resurfacing the shoulders of roads or other areas where vegetation is to be established and maintained. The properties important in evaluating soil material for this use are (1) productivity, (2) coarse fragments, and (3) thickness.

Road fill is material used for building up road grades. The properties important in evaluating soil material for this use are (1) shrink-swell behavior, (2) traffic-supporting capacity, (3) inherent erodibility, and (4) thickness of the source material.

Topography, as well as the nature of the soil, influences the location of highways, but the interpretations in table 5 are based only on the characteristics of the soils. If rock is at or near the surface, engineers must consider the difficulty of excavating, the probability of slides, and the probability of seepage along or through the bedrock. On wet or flooded soils, the roadway is best constructed on a continuous embankment that is several feet above the

Figure 14.—**Farm pond constructed on Loradale silt loam. The pond is used for livestock water, irrigation, and recreation.**

high water table or above the flood line. Interceptor ditches or underdrains may be needed where there is subsurface seepage. Seepage in back slopes or cuts may cause overlying material to slump or slide.

Construction of farm ponds (fig. 14), drainage systems, irrigation systems, terraces, diversions, and waterways are affected by natural drainage, permeability, slope, and flood hazard. Wet soils that have a fragipan are not generally suitable for tile drainage. If suitable outlets are available, however, other wet soils can be drained by tile.

Nonfarm Uses of Soils[4]

The Lexington metropolitan area covers 25,000 acres of the 179,200 acres in Fayette County. In 1964, it was estimated that the population of this area had increased by about 400,000 since the 1950 census. Increased demand for homesites, industrial sites, recreational areas, and associated developments corresponded with this rapid increase in population, and as a result, much farm land was converted to nonfarm uses (fig. 15).

The western part of the county, which includes most of the Lexington metropolitan area, consists of gently sloping uplands where subterranean drainage is common. The soils in this area are predominantly deep and permeable. They have only slight to moderate limitations for most nonfarm uses.

Most of the eastern part of the county, which includes a small part of the Lexington metropolitan area, is similar to the western half in topography, but stream drainage is more common than subterranean drainage. The soils in this area are generally clayey and have somewhat restricted internal drainage. The limitations for most nonfarm uses are moderate or severe.

In a small area in the extreme southeastern part of the county, along Boone Creek and the Kentucky River, the topography is steep and deeply dissected. Most of the soils of this small area have severe limitations for many nonfarm uses, mainly because of steep slopes, texture, and shallowness. This area is moderately well suited to wildlife and to some recreational uses.

[4]This section was written by HERMAN P. MCDONALD, soil scientist, SCS.

Table 6 (page 42) shows the degree of limitation of the soils in Fayette County for use as building locations, filter fields for septic tank systems, pipelines, streets, parking lots, golf fairways, lawns, and recreational uses. A rating of *slight* means that the soil has few or no limitations for the use specified or that the limitations can be easily overcome. A rating of *moderate* indicates that some planning and engineering practices are needed to overcome the limitation. A rating of *severe* indicates that the soil is poorly suited to the use specified and that intensive engineering practices, as well as a large investment, are needed to overcome the problems. Ratings are not given in this table for miscellaneous land types.

Explanations of the headings in table 6 and a list of the soil characteristics on which the degree of limitation for each use depends are given in the following paragraphs:

Locations for buildings.—This heading refers to locations of dwellings and commercial, institutional, or light industrial buildings. For structures with basements the degree of limitation depends on shrink-swell, permeability, slope, depth to rock, depth to water table, and susceptibility to stream overflow. For structures without basements, frost action is also considered.

Filter fields for septic tank systems.—Soil characteristics on which the degree of limitation depends are permeability, shrink-swell potential, depth to hard rock, depth to water table, slope, and hazard of stream overflow.

Steel pipelines.—This heading refers to water mains, sewer lines, and other types of underground pipelines that are normally found in metropolitan areas. Soil characteristics on which the degree of limitation depends are acidity, slope, shrink-swell potential, depth to water table, depth to hard rock, and hazard of stream overflow.

Streets and parking lots.—This heading refers to paved streets, parking lots, and paved areas such as those found in residential areas and subdivisions. Soil characteristics on which the degree of limitation depends are slope, hazard of stream overflow, and depth to rock.

Golf fairways, lawns, and landscaping.—Soil characteristics on which the degree of limitation depends are slope, erosion, susceptibility to flooding, texture, depth to hard rock, and natural drainage. Ratings apply to relatively undisturbed soils.

Figure 15.—**In the foreground, alfalfa on nearly level Maury soil; in the background, a subdivision. Farmland in Fayette County is rapidly being converted to nonfarm uses.**

TABLE 4.—*Estimated engineering*

Soil series and map symbols	Depth to rock	Depth to seasonal high water table	Flood hazard	Depth from surface	Classification	
					USDA texture	Unified
	Feet	*Feet*		*Inches*		
Armour (ArA, ArB, ArC)	9 to 18	5+	Slight.	0 to 16	Silt loam	ML, CL
				16 to 49	Silty clay loam	CL
				49 to 56	Silty clay loam	CL, CH
Braxton (BrB, BrC2)	3 to 8	5+	None.	0 to 8	Silt loam	ML, CL
				8 to 15	Silty clay loam	ML, CL
				15 to 35	Cherty silty clay	CL
				35 to 48	Very cherty clay	CL, CH
Captina (CaA, CaB)	5 to 15	1½	Slight.	0 to 13	Silt loam	ML, CL
				13 to 21	Silty clay loam	CL
				21 to 40	Silty clay loam	CL
				40 to 54	Silty clay	CL, CH
Culleoka (flaggy) (CfF2)	3 to 4½	5+	None.	0 to 7	Flaggy silt loam	ML, CL
				7 to 22	Flaggy silty clay loam.	ML, CL
Culleoka (CsC2)	3 to 8	5+	None.	0 to 14	Silt loam	ML, CL
				14 to 30	Silty clay loam	CL
				30 to 40	Silty clay loam to silty clay.	CL, CH
Donerail (DoA, DoB, DoC)	3½ to 12	1½ to 2½	None.	0 to 10	Silt loam	ML, CL
				10 to 17	Silty clay loam	CL
				17 to 35	Silty clay	CL, CH
				35 to 49	Clay	CH
Egam (Ea, Ec)	4 to 15	1½ to 2½	Moderate.	0 to 8	Silt loam or silty clay loam.	ML, CL
				8 to 31	Silty clay loam	CL
				31 to 46	Silty clay loam or silty clay.	CL
Fairmount (FaD, FaD3, FaF)	1 to 1½	4+	None.	0 to 3	Silty clay loam or silty clay.	CL
				3 to 14	Silty clay to clay	CL, CH
				14	Limestone	
Huntington (Hu)	4 to 15	3+	Moderate.	0 to 37	Silt loam	ML, CL
				37 to 54	Silty clay loam	CL, ML
Lanton (La)	4 to 15	0 to ½	Moderate.	0 to 23	Silty clay loam	CL
				23 to 31	Silty clay	CL, CH
				31 to 48	Clay	CH
Lawrence (Lc)	4 to 15	½ to 1	Slight.	0 to 8	Silt loam	ML, CL
				8 to 20	Silt loam	CL
				20 to 33	Silty clay loam	CL
				33 to 48	Silty clay	CL, CH
Lindside (Ld)	4 to 15	1½ to 2	Moderate.	0 to 30	Silt loam	ML, CL
				30 to 48	Silt loam	ML, CL
Loradale (LoB, LoC, LoC2)	4 to 10	4+	None.	0 to 11	Silt loam	ML, CL
				11 to 23	Silty clay loam	CL
				23 to 42	Silty clay	CL, CH
				42 to 54	Clay	CH
Loudon (LpB, LpC2)	3½ to 8	½ to 1½	None.	0 to 7	Silt loam	ML, CL
				7 to 17	Silty clay loam	CL
				17 to 24	Silty clay	CL, CH
				24 to 48	Clay	CL, CH
Lowell (LwB, LwC2, LwD2, LyC3, LyD3).	3 to 8	3+	None.	0 to 9	Silt loam	ML, CL
				9 to 16	Silty clay loam	CL
				16 to 26	Silty clay	CL
				26 to 42	Silty clay, clay	CL, CH

properties of the soils

Classification—Continued	Percent passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
AASHO	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A-4, A-6	95 to 100	90 to 100	80 to 95	0.63 to 2.0	0.18 to 0.23	5.6 to 6.0	Low.
A-6	95 to 100	90 to 100	85 to 100	0.63 to 2.0	0.19 to 0.21	5.1 to 6.0	Moderate.
A 6, A 7	95 to 100	85 to 100	80 to 100	0.63 to 2.0	0.19 to 0.21	5.1 to 6.0	Moderate to high.
A-4, A-6	75 to 100	75 to 100	65 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	75 to 100	75 to 100	75 to 95	0.63 to 2.0	0.19 to 0.21	5.6 to 6.0	Moderate.
A-7	65 to 90	65 to 90	60 to 85	0.63 to 2.0	0.10 to 0.12	5.1 to 5.5	High.
A-7	60 to 90	60 to 90	55 to 85	0.63 to 2.0	0.05 to 0.06	5.1 to 5.5	High.
A-4, A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.19 to 0.21	5.6 to 6.0	Moderate.
A-6	95 to 100	90 to 100	80 to 95	<0.2	0.19 to 0.21	5.1 to 5.5	Moderate.
A-6, A-7	95 to 100	90 to 100	75 to 95	0.2 to 0.63	0.19 to 0.21	6.1 to 6.5	Moderate to high.
A-4, A-6	75 to 90	75 to 90	70 to 90	2.0 to 6.3	0.12 to 0.15	5.6 to 6.0	Low.
A-6	75 to 90	75 to 90	70 to 90	0.63 to 6.3	0.12 to 0.14	5.1 to 6.0	Moderate.
A-4, A-6	85 to 100	80 to 100	75 to 95	0.63 to 2.0	0.18 to 0.23	5.1 to 5.5	Low.
A-7	85 to 95	80 to 95	75 to 90	0.63 to 6.3	0.19 to 0.21	5.1 to 5.5	Moderate.
A-7	80 to 90	75 to 90	70 to 90	0.63 to 2.0	0.15 to 0.21	5.1 to 5.5	Moderate to high.
A-4, A-6	95 to 100	90 to 100	80 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	90 to 100	85 to 95	0.63 to 2.0	0.19 to 0.21	5.6 to 6.0	Moderate.
A-7, A-6	95 to 100	85 to 100	80 to 95	0.2 to 0.63	0.15 to 0.18	5.1 to 6.0	Moderate to high.
A-7	90 to 100	80 to 95	75 to 90	0.2 to 0.63	0.15 to 0.18	6.6 to 7.8	High.
A-4, A-6	95 to 100	90 to 100	75 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	85 to 100	80 to 95	0.2 to 0.63	0.19 to 0.21	6.1 to 7.3	Moderate.
A-7, A-6	90 to 100	85 to 100	75 to 95	0.2 to 0.63	0.15 to 0.21	6.6 to 7.3	Moderate to high.
A-6	85 to 100	85 to 100	80 to 95	0.2 to 0.63	0.19 to 0.21	6.1 to 6.5	Moderate.
A-6, A-7	85 to 100	80 to 100	75 to 95	0.2 to 0.63	0.15 to 0.18	6.6 to 7.8	Moderate to high.
A-4, A-6	95 to 100	95 to 100	70 to 100	2.0 to 6.3	0.18 to 0.23	6.6 to 7.3	Low.
A-6	95 to 100	90 to 100	65 to 100	0.63 to 2.0	0.19 to 0.21	6.6 to 7.3	Moderate.
A-6	95 to 100	90 to 100	80 to 100	0.63 to 2.0	0.19 to 0.21	6.6 to 7.3	Low.
A-7, A-6	95 to 100	90 to 100	80 to 100	0.2 to 0.63	0.15 to 0.18	6.6 to 7.3	Moderate.
A-7	95 to 100	80 to 100	70 to 95	0.2 to 0.63	0.15 to 0.18	6.6 to 7.3	High.
A-4, A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	90 to 100	80 to 95	0.2 to 2.0	0.18 to 0.23	4.5 to 5.5	Low to moderate.
A-6	95 to 100	85 to 100	75 to 95	<0.2	0.19 to 0.21	4.5 to 5.0	Moderate.
A-7, A-6	95 to 100	85 to 100	80 to 95	0.2 to 0.63	0.15 to 0.18	5.6 to 6.0	High.
A-4, A-6	95 to 100	95 to 100	75 to 100	0.63 to 2.0	0.18 to 0.23	6.6 to 7.3	Low to moderate.
A-4, A-6	95 to 100	90 to 100	65 to 100	0.63 to 2.0	0.18 to 0.23	7.4 to 7.8	Moderate.
A-4, A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.22	6.1 to 6.5	Low.
A-6	95 to 100	95 to 100	85 to 100	0.63 to 2.0	0.19 to 0.21	5.6 to 6.5	Moderate.
A-7, A-6	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	4.5 to 5.5	High.
A-7	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	4.5 to 5.0	High.
A-4, A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	95 to 100	85 to 100	0.2 to 0.63	0.19 to 0.21	5.1 to 5.5	Moderate.
A-7	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	5.1 to 5.5	Moderate to high.
A-7	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	4.5 to 5.0	High.
A-4, A-6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	6.1 to 6.5	Low.
A-6	95 to 100	95 to 100	85 to 100	0.63 to 2.0	0.19 to 0.21	5.6 to 6.0	Moderate.
A-6, A-7	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	5.1 to 5.5	Moderate to high.
A-7	95 to 100	90 to 100	80 to 95	0.2 to 0.63	0.15 to 0.18	4.5 to 5.0	High.

TABLE 4.—*Estimated engineering*

Soil series and map symbols	Depth to rock	Depth to seasonal high water table	Flood hazard	Depth from surface	Classification	
					USDA texture	Unified
	Feet	*Feet*		*Inches*		
Made land (Md, Me) No estimates of properties.						
Maury (MlA, MlB, MlB2, MlC, MlC2, MlD2, MmC3).	3 to 12	5+	None.	0 to 14 14 to 21 21 to 66 66 to 88	Silt loam Silty clay loam Silty clay Clay	ML, CL CL CL, CH CH
McAfee (MnB, MnC, MoC3, MoD3, MpB2, MpC2, MpD2).	1½ to 3	4+	None.	0 to 7 7 to 18 18 to 26 26	Silt loam Silty clay Clay Phosphatic limestone	ML, CL CL CL, CH —
McAfee (very rocky) (MrD2, MrE2, MsD3).	1 to 2	4+	None.	0 to 6 6 to 16	Silty clay loam Silty clay to clay	CL CL, CH
Melvin (Mt)	4 to 15	0 to ½	Moderate.	0 to 31 31 to 48	Silt loam Silty clay loam	ML, CL CL
Mercer (MuA, MuB, MuB2, MuC, MuC2).	5 to 10	1½	None.	0 to 14 14 to 21 21 to 38 38 to 48	Silt loam Silty clay loam Silty clay loam Clay	ML, CL CL CL CH
Newark (Ne)	4 to 15	½ to 1	Moderate.	0 to 33 33 to 48	Silt loam Silty clay loam	ML, CL CL
Rock land (Rk) No estimates of properties.						
Russellville (RuB, RuC2)	5 to 10	2 to 2½	None.	0 to 13 13 to 33 33 to 48 48 to 62	Silt loam Silty clay loam Silty clay loam Silty clay	ML, CL CL CL CL
Salvisa (SaC3, ScB2, ScC2, ScE2)	1½ to 3	4+	None.	0 to 7 7 to 16 16 to 28 28	Silty clay loam Silty clay Clay Interbedded limestone and shale.	ML, CL CL CL, CH —
Urban land (Ua, Um) No estimates of properties of Urban land. For properties of Armour and Maury parts of Ua, see Armour and Maury series. For properties of Loradale and Mercer parts of Um, see Loradale and Mercer series.						

Athletic fields.—This heading refers to areas developed for organized games such as baseball, football, or volleyball. Soil characteristics on which the degree of limitation depends are slope, hazard of stream overflow, susceptibility to erosion, texture, depth to hard rock, and depth to water table.

Picnic areas.—Soil characteristics on which the degree of limitation depends are slope, surface rockiness, depth to water table, texture, hazard of stream overflow, and susceptibility to erosion. It is desirable for a site to have trees and ponds.

Campsites.—The degree of limitation depends on the same soil characteristics as the degree of limitation for picnic areas.

Access roads and park roads.—This heading refers to low-cost surfaced roads for light vehicular traffic. Only a minimum amount of grading or subgrading can be done. Soil characteristics on which the degree of limitation depends are slope, depth to hard rock, depth to water table, susceptibility to erosion, and texture.

Formation, Classification, and Morphology of Soils

This section has three main parts. The first part describes the environment in which the soils of Fayette County formed and relates it to the characteristics of the

properties of the soils—Continued

Classification—Continued	Percent passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
AASHO	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A–4 or A–6	95 to 100	95 to 100	85 to 95	2.0 to 6.3	0.18 to 0.23	6.1 to 6.5	Low.
A–6	95 to 100	95 to 100	85 to 100	0.63 to 2.0	0.19 to 0.21	5.6 to 6.0	Moderate.
A–7, A–6	95 to 100	90 to 100	80 to 95	0.63 to 2.0	0.15 to 0.18	5.1 to 5.5	High.
A–7	95 to 100	90 to 100	80 to 95	0.2 to 0.63	0.15 to 0.18	5.1 to 6.0	High.
A–4, A–6	90 to 100	90 to 100	85 to 95	2.0 to 6.3	0.18 to 0.23	6.1 to 6.5	Low.
A–6, A–7	90 to 100	90 to 100	85 to 95	0.63 to 2.0	0.15 to 0.21	5.6 to 6.0	Moderate to high.
A–7	90 to 100	85 to 100	80 to 95	0.2 to 2.0	0.15 to 0.18	6.1 to 6.5	High.
A–6, A–7	85 to 100	85 to 100	80 to 95	2.0 to 6.3	0.19 to 0.21	6.1 to 6.5	Moderate.
A–7, A–6	85 to 100	80 to 100	75 to 95	0.2 to 2.0	0.15 to 0.18	5.6 to 6.5	High.
A–4, A–6	95 to 100	95 to 100	80 to 100	0.63 to 2.0	0.18 to 0.23	6.6 to 7.3	Low.
A–6	95 to 100	90 to 100	70 to 100	0.63 to 2.0	0.19 to 0.21	7.4 to 7.8	Moderate.
A–4, A–6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	5.6 to 6.0	Low.
A–6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.19 to 0.21	5.1 to 5.5	Moderate.
A–6	95 to 100	90 to 100	80 to 95	<0.2	0.19 to 0.21	4.5 to 5.5	Moderate to high.
A–7	95 to 100	90 to 100	85 to 95	0.2 to 0.63	0.15 to 0.18	4.5 to 5.0	High.
A–4, A–6	95 to 100	95 to 100	80 to 100	0.63 to 2.0	0.18 to 0.23	6.6 to 7.3	Low.
A–6	95 to 100	90 to 100	70 to 100	0.63 to 2.0	0.19 to 0.21	6.6 to 7.3	Moderate.
A–4, A–6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.18 to 0.23	5.1 to 6.0	Low.
A–6	95 to 100	95 to 100	85 to 95	0.63 to 2.0	0.19 to 0.21	4.5 to 5.5	Moderate.
A–6	95 to 100	90 to 100	80 to 95	<0.2	0.19 to 0.21	4.5 to 5.0	Moderate.
A–7, A–6	95 to 100	90 to 100	80 to 95	0.2 to 0.63	0.19 to 0.21	4.5 to 5.0	Moderate to high.
A–4, A–6	90 to 100	90 to 100	85 to 95	0.63 to 2.0	0.19 to 0.21	6.1 to 6.5	Low.
A–6, A–7	90 to 100	90 to 100	85 to 95	0.63 to 2.0	0.15 to 0.18	6.1 to 6.5	Moderate.
A–7, A–6	90 to 100	85 to 100	80 to 95	0.2 to 0.63	0.15 to 0.18	6.6 to 7.8	High.

soils. The second part explains the system of soil classification and shows the classification of the soils of Fayette County by series and higher categories. The last part describes a typical profile of each series.

Formation of Soils

The characteristics of the soil at any given point depend on climate; on the physical and chemical composition of parent material; on relief; on plant and animal life; and on time. Soil is formed by the interaction of these five factors. The relative importance of each factor differs from one area to another. In some areas one factor may dominate in the formation of soil characteristics, and in other areas another factor may dominate. Climate and plant and animal life are not likely to vary much within a county, but there may be many local differences in relief and parent material.

Since the interrelationships among the five factors are complex, the effects of any one factor are hard to determine. There follows a brief discussion of some of the ways in which each of these factors have influenced soil formation in Fayette County.

Climate

Climate affects the physical, chemical, and biological relationships in the soil. It influences the kind and num-

TABLE 5.—*Engineering*

[For interpretations on use for building sites,

Soil series and map symbol	Susceptibility to frost action	Suitability as a source of—		Highway location
		Topsoil	Road fill	
Armour (ArA, ArB, ArC)	Moderate to high.	Good	Fair	Flooding
Braxton (BrB, BrC2)	Moderate to high.	Fair	Fair or poor	None
Captina (CaA, CaB)	Moderate to high.	Fair	Fair	Seasonal high water table; infrequent flooding.
Culleoka (CfF2, CsC2)	Moderate to high.	Poor	Fair	Moderately deep to bedrock; some steep slopes.
Donerail (DoA, DoB, DoC)	Moderate to high.	Fair to good	Fair to poor	Seasonal high water table.
Egam (Ea, Ec)	Moderate to high.	Fair to good	Fair to poor	Flooding; seasonal high water table.
Fairmount (FaD, FaD3, FaF)	Moderate	Poor	Poor	Shallow to bedrock; available fill material limited.
Huntington (Hu)	Moderate	Good	Good to fair	Flooding
Lanton (La)	Moderate to high.	Fair	Poor	Flooding; seasonal high water table.
Lawrence (Lc)	Moderate to high.	Fair to poor	Fair	Lower elevations subject to infrequent flooding; seasonal high water table.
Lindside (Ld)	Moderate to high.	Good	Good to fair	Flooding; seasonal high water table.
Loradale (LoB, LoC, LoC2)	Moderate to high.	Good	Fair to poor	Some sloping areas
Loudon (LpB, LpC2)	Moderate to high.	Poor	Fair to poor	Seasonal high water table; some sloping areas.
Lowell (LwB, LwC2, LwD2, LyC3, LyD3)	Moderate to high.	Fair; poor for severely eroded phases.	Fair to poor	Some strongly sloping areas.
Made land (Md, Me) No estimates of properties.				
Maury (MIA, MIB, MIB2, MIC, MIC2, MID2, MmC3).	Moderate to very high.	Good; poor for severely eroded phases.	Fair	Some strongly sloping areas.

See footnote at end of table.

interpretations

septic tank filter fields, and pipelines, see table 6]

Soil features adversely affecting engineering practices					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions [1]	Grassed waterways
Reservoir area	Embankment				
Flooding; seepage	None	Not needed	None	Some slopes of more than 8 percent.	Infrequent flooding.
Bedrock may be creviced.	None	Not needed	None	Some slopes of more than 8 percent.	None.
Infrequent flooding; possible seepage through substratum; stratified alluvium.	None	Slow permeability; fragipan at a depth of about 21 inches.	Slow permeability	None	Side slope seepage.
Some steep areas; shallow to rock in some areas.	Some hazard of piping.	Not needed	Some steep areas	Some slopes of more than 8 percent.	Some steep areas.
None	None	Moderately slow permeability.	Moderately slow permeability.	None	None.
Flooding	None	Moderately slow permeability.	Moderately slow permeability.	Not needed	Flooding.
Excessive seepage due to creviced bedrock; rocky.	Amount of soil material very limited; rocky; poor workability.	Not needed	Shallow to bedrock; rocky.	Shallow to bedrock; rocky.	Shallow to bedrock; rocky.
Flooding; excessive seepage due to moderate permeability; creviced bedrock.	Hazard of piping	Not needed	None	Terraces not needed.	Flooding.
Flooding	Poor compaction; high shrink-swell.	Moderately slow permeability.	Moderately slow permeability.	Terraces not needed.	Flooding.
None	High shrink-swell below a depth of 30 inches.	Slow permeability; fragipan at a depth of 12 to 24 inches.	Slow permeability	Terraces not needed.	None.
Flooding; excessive seepage because of moderate permeability.	Hazard of piping	None	None	Terraces not needed.	Flooding.
Bedrock may be creviced.	High shrink-swell below a depth of 20 inches; poor compactibility.	Not needed	Moderately slow permeability; some sloping areas.	None	None.
None; bedrock may be creviced.	None; high shrink-swell below a depth of 24 inches.	Moderately slow permeability.	Moderately slow permeability.	Some slopes more than 8 percent.	None.
Seepage may occur if thin-bedded limestone is exposed.	High shrink-swell below a depth of 26 inches.	Not needed	Moderately slow permeability; some strongly sloping areas.	Some slopes of more than 8 percent.	Some strongly sloping areas.
Bedrock may be creviced.	High shrink-swell below a depth of 20 inches.	Not needed	Some strongly sloping areas.	Some slopes of more than 8 percent.	Some strongly sloping areas.

TABLE 5.—*Engineering*

Soil series and map symbol	Susceptibility to frost action	Suitability as a source of—		Highway location
		Topsoil	Road fill	
McAfee (MnB, MnC, MoC3, MoD3, MpB2, MpC2, MpD2, MrD2, MrE2, MsD3).	Moderate to high.	Fair; poor for very rocky phases.	Poor	Shallow to bedrock; some moderately steep areas; very rocky in some areas.
Melvin (Mt)	Moderate to high.	Fair	Fair	Flooding; seasonal high water table.
Mercer (MuA, MuB, MuB2, MuC, MuC2)	Moderate to very high.	Fair	Fair	Seasonal high water table.
Newark (Ne)	Moderate to high.	Good to fair	Fair	Flooding; seasonal high water table.
Rock land (Rk) No estimates of properties.				
Russellville (RuB, RuC2)	Moderate to high.	Fair	Fair	Seasonal high water table.
Salvisa (SaC3, ScB2, ScC2, ScE2)	Moderate to high.	Fair	Poor	Moderately deep to bedrock; some steep areas; high shrink-swell.
Urban land (Ua, Um) No estimates of properties of Urban land. For properties of Armour and Maury parts of Ua, see Armour and Maury series. For properties of Loradale and Mercer parts of Um, see Loradale and Mercer series.				

[1] Slopes of more than 8 percent are considered too steep for terraces.

ber of plants and animals, the weathering of rocks and minerals, erosion, and the rate of soil formation.

The soils of Fayette County formed in a temperate, moist climate. Since the soils were moist and subject to leaching during formation, the soluble bases have been largely leached out of the solum, and clay minerals have moved from the surface soil into the subsoil. As a result, many of the soils are acid and have a high content of clay in the subsoil. The Maury and Lowell soils are examples. Climate has been a relatively uniform factor within the county and accounts for only very slight differences among the soils.

Parent material

Parent material is the unconsolidated mass from which a soil is formed. The soils in Fayette County formed mostly from material weathered from rocks in place and in alluvium washed from these soils and deposited along the streams. Most of the parent material weathered from rock formations consisting chiefly of limestone, some of which, especially that in the east-central part of the county, is interbedded with thin layers of calcareous shale. The parent material of the soils in the southeastern part of the county weathered from calcareous siltstone, calcareous shale, and limestone. In a few places the soils formed partly in a silty mantle of undetermined origin.

The chemical composition, the mineral content, and the texture of the soils in the county have been influenced greatly by the kind of parent material from which the soils formed. For example, Culleoka soils formed in material weathered from siltstone and are coarser textured than Lowell soils, which formed in material weathered mostly from limestone and shale. Maury soils formed in material weathered from phosphatic limestone and are high in phosphate. Huntington and other alluvial soils have the same general composition as the surrounding soils on uplands from which the soil material was derived.

interpretations—Continued

Soil features adversely affecting engineering practices					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions [1]	Grassed waterways
Reservoir area	Embankment				
Shallow to creviced bedrock.	Soil material very limited; high shrink-swell below a depth of 18 inches.	Not needed	Shallow to bedrock in some places; some steep and rocky areas.	Some steep and rocky slopes.	Some moderately steep and rocky areas; shallow to bedrock in some places.
Hazard of seepage; flooding.	Hazard of piping	Moderate permeability; seasonal high water table.	Seasonal high water table.	Terraces not needed.	Flooding; seasonal high water table.
None	Poor compaction below a depth of 35 inches.	Slow permeability; fragipan at a depth of 20 inches.	Slow permeability; fragipan at a depth of 20 inches.	Some slopes of more than 8 percent.	Side slope seepage.
Excessive subsoil seepage; flooding.	Hazard of piping	Moderate permeability; seasonal high water table.	Seasonal high water table.	Terraces not needed.	Flooding; seasonal high water table.
None	None	Slow permeability; fragipan at a depth of 28 to 36 inches.	None	Some slopes of more than 8 percent.	None.
Moderately deep to creviced bedrock.	Soil material may be limited; poor compaction; high shrink-swell.	Not needed	Moderately deep to bedrock; moderately slow permeability.	Some slopes of more than 8 percent.	Some steep areas.

Relief

Most of the county consists of broad, gently rolling or undulating areas that are underlain by limestone. On this kind of relief, much of the rain enters the soils and percolates downward through them, and little soil material is lost through erosion. As a result, these soils are deep and have well-defined horizons. Examples are Loradale soils, which have an accumulation of clay in the subsoil; Mercer soils, which have a fragipan; Maury soils; and Donerail soils.

Slopes are much steeper in the extreme southeastern part of the county. This area is underlain mostly by calcareous siltstone and calcareous shale. Both of these have little resistance to weathering, and consequently streams have cut deep, narrow valleys. In this steeper part of the county, most of the surface water runs off, and little water has percolated through the soils. As a result, erosion has been rapid, and leaching has been at a minimum. These soils, therefore, have weakly defined horizons and are shallow. Examples are the steep Fairmount and Culleoka soils. Culleoka soils are much deeper to bedrock than Fairmount soils, however, because they are underlain by siltstone that is easily weathered.

Plant and animal life

The vegetation that grows on the soils during the period of formation influences the type of soil that is formed. The native vegetation of Fayette County was mostly hardwood forest and extensive canebrakes.

Soils that formed under grass normally have a thicker surface soil and contain more organic matter than soils that formed under forest. In places Maury soils and some other soils have a thicker and somewhat darker colored surface layer than is normal for soils formed under forest vegetation. These thick surface soils were probably formed under canebrakes, or grass, or both. Lanton soils have a thick, dark-colored surface layer that consists of organic matter accumulation. They formed under dense

TABLE 6.—*Estimated limitations of*

Mapping units	Locations for buildings 3 stories or less in height		Filter fields for septic tank systems	Steel pipelines
	With basements	Without basements		
Armour silt loam, 0 to 2 percent slopes (ArA).	Slight to severe: some areas subject to flooding.	Slight to severe: some areas subject to flooding.	Slight to severe: some areas subject to flooding.	Slight to severe: some areas subject to flooding.
Armour silt loam, 2 to 6 percent slopes (ArB).	Slight to severe: some areas subject to flooding.	Slight to severe: some areas subject to flooding.	Slight to severe: some areas subject to flooding.	Slight.
Armour silt loam, 6 to 12 percent slopes slopes (ArC).	Moderate: slope.	Moderate: slope.	Moderate: slope.	Moderate: slope.
Braxton silt loam, 2 to 6 percent slopes (BrB).	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.	Slight: shrink-swell.
Braxton silt loam, 6 to 12 percent slopes, eroded (BrC2).	Moderate: shrink-swell; slope.	Moderate: shrink-swell; slope.	Moderate: slope; depth to rock.	Moderate: slope; shrink-swell; rock.
Captina silt loam, 0 to 2 percent slopes (CaA).	Moderate or severe: water table; some areas subject to flooding.	Moderate or severe: shrink-swell; frost action; some areas subject to flooding.	Severe: water table; permeability; some areas subject to flooding.	Severe: water table; acidity; some areas subject to flooding.
Captina silt loam, 2 to 6 percent slopes (CaB).	Moderate or severe: water table; some areas subject to flooding.	Moderate or severe: shrink-swell; frost action; some areas subject to flooding.	Severe: water table; permeability; some areas subject to flooding.	Severe: water table; acidity; some areas subject to flooding.
Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded (CfF2).	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Culleoka silt loam, 6 to 12 percent slopes, eroded (CsC2).	Moderate: rock; slope.	Moderate: slope.	Moderate: slope; depth to rock.	Moderate: slope.
Donerail silt loam, 0 to 2 percent slopes (DoA).	Moderate: water table; shrink-swell.	Moderate: shrink-swell; frost action; water table.	Severe: permeability.	Moderate: water table.
Donerail silt loam, 2 to 6 percent slopes (DoB).	Severe: water table; shrink-swell.	Moderate: shrink-swell; frost action; water table.	Severe: permeability.	Moderate: water table.
Donerail silt loam, 6 to 12 percent slopes (DoC).	Moderate: water table; shrink-swell.	Moderate: shrink-swell; frost action; water table.	Severe: permeability.	Moderate: water table.
Egam silt loam (Ea)	Severe: flooding; water table.	Severe: flooding.	Severe: flooding.	Moderate: flooding; water table.
Egam silty clay loam (Ec)	Severe: flooding; water table.	Severe: flooding.	Severe: flooding.	Moderate: flooding; water table.
Fairmount very rocky silty clay loam, 6 to 20 percent slopes (FaD).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; permeability.	Severe: rock.
Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded (FaD3).	Severe: rock; slope; shrink-swell.	Severe: slope; rock; shrink-swell.	Severe: rock; permeability; slope.	Severe: rock; slope.
Fairmount very rocky silty clay loam, 20 to 50 percent slopes (FaF).	Severe: rock; slope; shrink-swell.	Severe: slope; rock; shrink-swell.	Severe: rock; permeability; slope.	Severe: rock; slope.
Huntington silt loam (Hu)	Severe: flooding.	Severe: flooding.	Severe: flooding.	Slight.
Lanton silty clay loam (La)	Severe: flooding; water table.	Severe: flooding.	Severe: flooding; water table.	Severe: flooding; water table.

soils for nonfarm uses

Streets and parking lots	Golf fairways, lawns, and landscaping	Athletic fields	Picnic areas	Campsites (tents)	Access roads and park roads
Slight to severe: some areas subject to flooding.	Slight	Slight to severe: some areas subject to flooding.	Slight	Slight	Slight to severe: some areas subject to flooding.
Moderate or severe: slope; some areas subject to flooding.	Slight	Moderate or severe: slope; some areas subject to flooding.	Slight	Slight	Slight to severe: some areas subject to flooding.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Moderate: slope	Slight	Moderate: slope	Slight	Slight	Slight.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Moderate or severe: water table; some areas subject to flooding.	Slight	Moderate or severe: water table; some areas subject to flooding.	Slight	Moderate: water table.	Moderate or severe: water table; some areas subject to flooding.
Moderate or severe: slope; water table; some areas subject to flooding.	Slight	Moderate or severe: slope; water table; some areas subject to flooding.	Slight	Moderate	Moderate or severe: slope; water table; some areas subject to flooding.
Severe: slope	Severe: slope	Severe: slope; fragments.	Severe: slope	Severe: slope	Severe: slope.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Moderate: water table.	Slight	Moderate: water table.	Slight	Moderate: water table.	Moderate: water table.
Moderate: slope; water table.	Slight	Moderate: slope; water table.	Slight	Moderate: water table.	Moderate: water table.
Severe: slope	Moderate: slope	Severe: slope; water table.	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: flooding; water table.	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding.
Severe: flooding; water table.	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding.
Severe: rock	Severe: surface rocks; depth to rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock.
Severe: rock; slope.	Severe: surface rocks; depth to rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.
Severe: rock; slope.	Severe: surface rocks; depth to rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.
Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding.
Severe: flooding; water table.	Severe: water table; flooding.	Severe: water table; flooding.	Severe: water table; flooding.	Severe: water table; flooding.	Severe: flooding; water table.

TABLE 6.—*Estimated limitations of*

Mapping units	Locations for buildings 3 stories or less in height		Filter fields for septic tank systems	Steel pipelines
	With basements	Without basements		
Lawrence silt loam (Lc)	Severe: water table; some areas subject to flooding.	Severe: water table; some areas subject to flooding.	Severe: water table; permeability.	Moderate: water table; flooding; acidity.
Lindside silt loam (Ld)	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: water table.
Loradale silt loam, 2 to 6 percent slopes (LoB).	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: permeability.	Slight
Loradale silt loam, 6 to 12 percent slopes (LoC).	Moderate: shrink-swell; slope.	Moderate: shrink-swell; slope.	Severe: permeability.	Moderate: slope
Loradale silt loam, 6 to 12 percent slopes, eroded (LoC2).	Moderate: shrink-swell; slope.	Moderate: shrink-swell; slope.	Severe: permeability.	Moderate: slope
Loudon silt loam, phosphatic, 2 to 6 percent slopes (LpB).	Severe: water table; shrink-swell.	Severe: water table; shrink-swell.	Severe: water table; permeability.	Severe: water table; acidity.
Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded (LpC2).	Severe: water table; shrink-swell.	Severe: shrink-swell; water table.	Severe: permeability; water table.	Severe: slope; water table.
Lowell silt loam, 2 to 6 percent slopes (LwB).	Moderate: shrink-swell; depth to rock.	Moderate: shrink-swell.	Severe: permeability.	Slight
Lowell silt loam, 6 to 12 percent slopes, eroded (LwC2).	Moderate: shrink-swell; slope; depth to rock.	Moderate: shrink-swell; slope.	Severe: permeability; shrink-swell; rock.	Moderate: slope; acidity.
Lowell silt loam, 12 to 20 percent slopes, eroded (LwD2).	Moderate: shrink-swell; slope; depth to rock.	Moderate: shrink-swell; slope.	Severe: slope; permeability.	Severe: slope; acidity.
Lowell silty clay loam, 6 to 12 percent slopes, severely eroded (LyC3).	Moderate: shrink-swell; slope; depth to rock.	Moderate: shrink-swell; slope.	Severe: permeability.	Moderate: slope; acidity.
Lowell silty clay loam, 12 to 20 percent slopes, severely eroded (LyD3).	Moderate: slope; shrink-swell; rock.	Moderate: slope; shrink-swell.	Severe: slope; permeability.	Severe: slope
Maury silt loam, 0 to 2 percent slopes (MlA).	Moderate: shrink-swell.	Slight	Moderate: depth to rock.	Slight
Maury silt loam, 2 to 6 percent slopes (MlB).	Moderate: shrink-swell.	Slight	Moderate: depth to rock.	Slight
Maury silt loam, 2 to 6 percent slopes, eroded (MlB2).	Moderate: shrink-swell.	Slight	Moderate: depth to rock.	Slight
Maury silt loam, 6 to 12 percent slopes (MlC).	Moderate: shrink-swell; slope.	Moderate: shrink-swell; slope.	Moderate: slope; depth to rock.	Moderate: slope
Maury silt loam, 6 to 12 percent slopes, eroded (MlC2).	Moderate: shrink-swell; slope.	Moderate: shrink-swell; slope.	Moderate: slope; depth to rock.	Moderate: slope
Maury silt loam, 12 to 20 percent slopes, eroded (MlD2).	Moderate: shrink-swell; slope; rock.	Moderate: shrink-swell; slope.	Slope: rock	Severe: slope
Maury silty clay loam, 6 to 12 percent slopes, severely eroded (MmC3).	Moderate: shrink-swell; slope.	Moderate: shrink-swell.	Moderate: slope; depth to rock.	Moderate: slope
McAfee silt loam, 2 to 6 percent slopes (MnB).	Severe: rock; shrink-swell.	Severe: shrink-swell; depth to rock.	Severe: rock; permeability.	Severe: rock

soils for nonfarm uses—Continued

Streets and parking lots	Golf fairways, lawns, and landscaping	Athletic fields	Picnic areas	Campsites (tents)	Access roads and park roads
Moderate: water table; some areas subject to flooding.	Moderate: water table; some areas subject to flooding.	Severe: water table; slow permeability; some areas subject to flooding.	Moderate: water table.	Severe: slow permeability; water table.	Moderate: some areas subject to flooding; water table.
Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding.
Moderate: slope	Slight	Moderate: slope; permeability.	Slight	Moderate: permeability.	Slight.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Moderate: water table; slope.	Moderate: water table.	Severe: water table.	Moderate: water table.	Severe	Moderate: water table.
Severe: slope	Moderate: water table.	Severe: slope; water table.	Moderate: slope; water table.	Severe	Moderate: slope.
Moderate: slope	Slight	Moderate: slope; permeability.	Slight	Moderate: permeability.	Slight.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope.
Severe: slope	Severe: erosion; slope.	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: slope	Severe: slope; erosion.	Severe: slope	Severe: slope	Severe: slope	Severe: slope.
Slight	Slight	Slight	Slight	Slight	Moderate.
Moderate: slope	Slight	Moderate: slope	Slight	Slight	Moderate.
Moderate: slope	Slight	Moderate: slope	Slight	Slight	Moderate.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope.
Severe: slope	Severe: erosion; slope.	Severe: slope	Moderate: slope	Moderate: slope	Moderate: slope.
Severe: rock	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Severe	Severe: depth to rock.

TABLE 6.—*Estimated limitations of*

Mapping units	Locations for buildings 3 stories or less in height		Filter fields for septic tank systems	Steel pipelines
	With basements	Without basements		
McAfee silt loam, 6 to 12 percent slopes (MnC).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; permeability.	Severe: rock.
McAfee silty clay, 6 to 12 percent slopes, severely eroded (MoC3).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; permeability.	Severe: rock.
McAfee silty clay, 12 to 20 percent slopes, severely eroded (MoD3).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; slope; permeability.	Severe: rock; slope.
McAfee silty clay loam, 2 to 6 percent slopes, eroded (MpB2).	Severe: rock; shrink-swell.	Severe: shrink-swell; depth to rock.	Severe: rock; permeability.	Severe: rock.
McAfee silty clay loam, 6 to 12 percent slopes, eroded (MpC2).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; permeability.	Severe: rock.
McAfee silty clay loam, 12 to 20 percent slopes, eroded (MpD2).	Severe: rock; shrink-swell.	Severe: rock.	Severe: rock; slope; permeability.	Severe: rock; slope.
McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded (MrD2).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; slope; permeability.	Severe: rock; slope.
McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded (MrE2).	Severe: rock; slope; shrink-swell.	Severe: rock; slope; shrink-swell.	Severe: rock; slope.	Severe: rock; slope.
McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded (MsD3).	Severe: rock; shrink-swell.	Severe: rock; shrink-swell.	Severe: rock; slope.	Severe: rock; slope.
Melvin silt loam (Mt)	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: water table.
Mercer silt loam, 0 to 2 percent slopes (MuA).	Moderate: water table; shrink-swell.	Moderate: water table; shrink-swell.	Severe: permeability; water table.	Moderate: water table.
Mercer silt loam, 2 to 6 percent slopes (MuB).	Moderate: water table; shrink-swell.	Moderate: water table; shrink-swell.	Severe: permeability; water table.	Moderate: water table.
Mercer silt loam, 2 to 6 percent slopes, eroded (MuB2).	Moderate: water table; shrink-swell.	Moderate: water table; shrink-swell.	Severe: permeability; water table.	Moderate: water table.
Mercer silt loam, 6 to 12 percent slopes (MuC).	Moderate: water table; slope; shrink-swell.	Moderate: water table; slope; shrink-swell.	Severe: permeability; water table.	Moderate: slope; acidity.
Mercer silt loam, 6 to 12 percent slopes, eroded (MuC2).	Moderate: water table; slope; shrink-swell.	Moderate: water table; shrink-swell; slope.	Severe: permeability; water table.	Moderate: slope; acidity.
Newark silt loam (Ne)	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Moderate: water table.
Russellville silt loam, 2 to 6 percent slopes (RuB).	Moderate: water table.	Moderate: water table.	Severe: permeability; water table.	Moderate: water table.
Russellville silt loam, 6 to 12 percent slopes, eroded (RuC2).	Moderate: water table; slope.	Moderate: slope.	Severe: permeability; water table.	Moderate: slope; acidity.
Salvisa silty clay, 6 to 12 percent slopes, severely eroded (SaC3).	Moderate: slope; shrink-swell; water table.	Moderate: shrink-swell; slope.	Severe: permeability.	Moderate: slope; water table.

soils for nonfarm uses—Continued

Streets and parking lots	Golf fairways, lawns, and landscaping	Athletic fields	Picnic areas	Campsites (tents)	Access roads and park roads
Severe: rock; slope.	Moderate: slope; depth to rock.	Severe: slope; depth to rock.	Moderate: slope	Severe: depth to rock.	Severe: depth to rock.
Severe: rock; slope.	Severe: slope; erosion.	Severe: rock; slope; texture.	Severe: surface texture.	Severe: surface texture.	Severe: depth to rock.
Severe: rock; slope.	Severe: slope; erosion.	Severe: slope; texture; rock.	Severe: slope; surface texture.	Severe: slope; surface texture.	Severe: slope; depth to rock.
Severe: rock	Moderate: texture; depth to rock.	Severe: depth to rock.	Moderate: surface texture.	Moderate: surface texture.	Severe: depth to rock.
Severe: rock; slope	Moderate: slope; texture.	Severe: slope; rock.	Moderate: slope; surface texture.	Moderate: slope; surface texture.	Severe: depth to rock.
Severe: rock; slope	Severe: slope	Severe: slope; rock.	Severe: slope	Severe: slope	Severe: slope; depth to rock.
Severe: rock; slope	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: rock; slope.	Severe: depth to rock; slope.
Severe: rock; slope	Severe: rock; slope.	Severe: rock; slope.	Severe: slope; rock.	Severe: slope; rock.	Severe: depth to rock; slope.
Severe: rock; slope	Severe: rock; slope; texture.	Severe: rock; slope; texture.	Severe: rock; slope; surface texture.	Severe: rock; slope; surface texture.	Severe: depth to rock; slope.
Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.
Moderate: water table.	Slight	Moderate: water table.	Slight	Severe: permeability.	Moderate: water table.
Moderate: slope; water table.	Slight	Moderate: slope	Slight	Severe: permeability.	Moderate: water table.
Moderate: slope; water table.	Slight	Moderate: slope	Slight	Severe: permeability.	Moderate: water table.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Severe: permeability.	Moderate: water table; slope.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope	Severe: permeability.	Moderate: water table; slope.
Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.	Severe: flooding; water table.
Moderate: water table; slope.	Slight	Severe: permeability.	Slight	Severe: permeability.	Moderate: water table.
Severe: slope	Moderate: slope	Severe: slope; permeability.	Moderate: slope	Severe: permeability.	Moderate: slope; water table.
Severe: slope; water table.	Severe: erosion; texture.	Severe: slope; surface texture.	Severe: surface texture.	Severe: surface texture.	Moderate: slope.

TABLE 6.—*Estimated limitations of*

Mapping units	Locations for buildings 3 stories or less in height		Filter fields for septic tank systems	Steel pipelines
	With basements	Without basements		
Salvisa silty clay loam, 2 to 6 percent slopes, eroded (ScB2).	Moderate: water table; shrink-swell.	Moderate: shrink-swell.	Severe: permeability.	Moderate: water table.
Salvisa silty clay loam, 6 to 12 percent slopes, eroded (ScC2).	Moderate: slope; water table; shrink-swell.	Moderate: shrink-swell; slope; water table.	Severe: permeability.	Moderate: water table; slope.
Salvisa silty clay loam, 12 to 30 percent slopes, eroded (ScE2).	Severe: slope	Severe: slope	Severe: slope; permeability.	Severe: slope

marsh vegetation and lacked oxygen to oxidize the organic material. In contrast, Lowell, Mercer, and Culleoka soils have the relatively thin dark-colored surface layer typical of soils that formed under trees.

The organisms that live in the soil serve an important function in soil formation by breaking down plant and animal residues. When these residues are broken down, minerals are released, and humus, which aids in the formation of soil structure, is formed.

Man has had some influence in the formation of soils. He will influence the future course of soil development by such practices as cultivation, irrigation, and drainage; introduction of new vegetation; and removal of part of the original soil.

Time

The effects of the active factors of soil formation—climate and living organisms—depend largely on the length of time the processes of soil formation have been in progress. Because of the influence of parent material and relief, this may be difficult to determine. If the influence of the active factors has been fairly uniform, the relative age of a soil can be determined by the degree of development of its genetic horizons. Soils that have little or no evidence of horizon development are considered to be young soils; those that have well-differentiated horizons are considered to be mature.

Huntington soils, which formed in recently deposited alluvium on flood plains are examples of young soils. Armour soils, which formed in old alluvium on stream terraces, are also considered to be young soils, though they show some evidence of profile development. Lowell and Mercer soils formed in residuum on gently sloping uplands. They have well-differentiated horizons and are considered to be mature soils.

Classification of Soils

Soils are classified so that we may more easily remember their significant characteristics, assemble knowledge about the soils, see their relationships to one another and to the whole environment, and develop principles that help us understand their behavior and their response to manipulation (*2*). First through classification, and then through use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

Two systems of classifying soils are used in the United States. The older of these systems was adopted in 1938 (*6*) and later revised (*5*). The current system was placed in general use by the Soil Conservation Service in 1965. The reader who is interested in the current system should search for the latest literature.[5] Modifications in this system are made as knowledge of soils increases.

The current system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the criteria used as a basis for classification are soil properties that are observable or measurable. The properties are chosen, however, so that the soils of similar genesis, or mode of origin, are grouped together.

The classes in the current system are briefly defined in the following paragraphs. The classification of the soil series of Fayette County by subgroups and orders of the current system and by great soil groups and orders of the 1938 system is shown in table 7.

ORDER: In the order of the current system of classification, soils are grouped according to common properties that seem to be the result of the same kinds of processes acting to about the same degree on soil material and by this action forming horizons. Ten soil orders are recognized in the current system.

SUBORDER: Each order is divided into suborders, primarily on the basis of those soil characteristics that seem to produce classes having the greatest genetic similarity. The suborders have a narrower climatic range than the order. The soil properties used to separate suborders mainly reflect either the presence or absence of water-logging or soil differences resulting from the climate or vegetation.

GREAT GROUP: Each suborder is divided into great groups, according to the presence or absence of genetic horizons and the arrangement of these horizons. The horizons on which placement in great groups is based are those in which clay, iron, or humus have accumulated. The soil features considered include the self-mulching properties of clay, soil temperature, and major differences

[5] An explanation of the current system can be obtained by referring to Simonson (*4*), and to "Soil Classification, A Comprehensive System, 7th Approximation," prepared in 1960 by the Soil Survey staff, Soil Conservation Service, U.S. Department of Agriculture, and to the Supplement issued in March 1967.

soils for nonfarm uses—Continued

Streets and parking lots	Golf fairways, lawns, and landscaping	Athletic fields	Picnic areas	Campsites (tents)	Access roads and park roads
Moderate: slope; water table.	Slight	Moderate: texture; slope; permeability.	Moderate: surface texture; water table.	Moderate: surface texture; water table.	Moderate: slope; water table.
Severe: slope	Moderate: slope	Severe: slope	Moderate: slope; surface texture.	Moderate: slope; surface texture.	Moderate: slope.
Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope.

in chemical composition (mainly in content of calcium, magnesium, sodium, and potassium).

SUBGROUP: Each great group is divided into subgroups, one representing the central (typic) concept of the group and others, called intergrades, representing the soils that have mostly the properties of one great group but have also one or more properties of the soils of another great group, suborder, or order. A subgroup may also be established if there are soils whose properties are outside of the range of properties of any recognized soil.

FAMILY: Each subgroup is divided into families, primarily on the basis of properties important to plant growth. Some of the properties considered are texture, mineralogy, reaction, soil temperature, permeability, consistence, and thickness of horizons.

Profile Descriptions

In this section, each of the soil series represented in Fayette County is discussed and a profile of a typical soil of each series is described in detail. Unless otherwise indicated the colors given in the profile descriptions are those of a moist soil. If the soil is dry, the color values are one or two units higher.

Armour Series

The Armour series consists of deep, well-drained, medium-textured soils on stream terraces and uplands. These soils formed mostly in materials washed from soils of limestone origin.

Armour soils occur with Russellville, Captina, and Lawrence soils. Armour soils are better drained than the

TABLE 7.—*Classification of soil series into higher categories*

Series	Current classification		1938 classification	
	Subgroup	Order	Great soil group	Order
Armour [1]	Humic Hapludults	Ultisols	Gray-Brown Podzolic soils	Zonal.
Braxton [1]	Humic Hapludults	Ultisols	Red-Yellow Podzolic soils	Zonal.
Captina	Typic Fragiudults	Ultisols	Red-Yellow Podzolic soils	Zonal.
Cullcoka	Ultic Hapludalfs	Alfisols	Gray-Brown Podzolic soils	Zonal.
Donerail	Typic Argiudolls	Mollisols	Red-Yellow Podzolic soils	Zonal.
Egam	Aquic Cumulic Hapludolls	Mollisols	Alluvial soils	Azonal.
Fairmount [1]	Paralithic Hapludolls	Mollisols	Rendzinas	Intrazonal.
Huntington	Fluventic Hapludolls	Mollisols	Alluvial soils	Azonal.
Lanton	Cumulic Haplaquolls	Mollisols	Humic Gley soils	Intrazonal.
Lawrence	Aquic Fragiudalfs	Alfisols	Planosols	Intrazonal.
Lindside [1]	Aquic Fluventic Eutrochrepts	Inceptisols	Alluvial soils	Azonal.
Loradale	Typic Argiudolls	Mollisols	Gray-Brown Podzolic soils	Zonal.
Loudon	Aquic Hapludalfs	Alfisols	Low-Humic Gley soils	Intrazonal.
Lowell	Typic Hapludalfs	Alfisols	Gray-Brown Podzolic soils	Zonal.
Maury	Humic Paleudults	Ultisols	Reddish-Brown Lateritic soils; intergrades to Gray-Brown Podzolic soils.	Zonal.
McAfee	Mollic Hapludalfs	Alfisols	Reddish-Brown Lateritic soils; intergrades to Lithosols.	Zonal.
Melvin	Fluventic Haplaquepts	Inceptisols	Low-Humic Gley soils	Intrazonal.
Mercer	Typic Fragiudalfs	Alfisols	Red-Yellow Podzolic soils	Zonal.
Newark	Aeric Fluventic Haplaquepts	Inceptisols	Alluvial soils	Azonal.
Russellville	Typic Fragiudults	Ultisols	Red-Yellow Podzolic soils	Zonal.
Salvisa	Mollic Hapludalfs	Alfisols	Gray-Brown Podzolic soils; intergrades to Lithosols.	Zonal.

[1] Placement of these soil series in the current system may change as more precise information becomes available.

associated soils and lack the fragipan that is characteristic of those soils.

The native vegetation was hardwood forest interspersed with canebrakes.

Profile of Armour silt loam, 0 to 2 percent slopes, in a pasture field on Elkchester Pike, northeast of South Elkhorn Creek.

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; medium acid; clear, smooth boundary. 7 to 10 inches thick.

A2—8 to 16 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; medium acid; clear, smooth boundary. 3 to 9 inches thick.

B1—16 to 23 inches, brown (7.5YR 4/4) silty clay loam; weak, medium, subangular blocky structure; few clay films; friable; few, small, black concretions; medium acid; clear, smooth boundary. 4 to 8 inches thick.

B2t—23 to 39 inches, brown (7.5YR 4/4) to reddish-brown (5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; common clay films; firm; few small specks of chert; common, small, black concretions; strongly acid; gradual, smooth boundary. 8 to 30 inches thick.

B3t—39 to 49 inches, reddish-brown (5YR 4/4) silty clay loam; common, fine, distinct, yellowish-brown (10YR 5/4) mottles; moderate, medium, angular and subangular blocky structure; common clay films; firm; common, small and medium, black concretions; common small specks of chert; strongly acid; gradual, smooth boundary. 7 to 14 inches thick.

C—49 to 56 inches +, reddish-brown (5YR 4/4) heavy silty clay loam; common, fine, faint mottles of brown (7.5YR 4/4), dark reddish brown (5YR 3/4), and light yellowish brown (10YR 6/4); weak, medium, angular blocky structure; firm; common black concretions; common specks of chert and few small fragments of chert; strongly acid.

The thickness of the solum ranges from 3 to 5 feet, and that of the alluvium from 3½ to 10 feet. The texture of the B1 horizon ranges to heavy silt loam. In some places the C horizon consists of stratified sand, silt, and clay. The color of the A horizon may be dark brown (7.5YR 4/4), and that of the B2t horizon strong brown (7.5YR 5/6). The reaction of the B and C horizons ranges from medium acid to strongly acid.

Braxton Series

The Braxton series consists of deep, well-drained soils that formed in residuum weathered from cherty, phosphatic limestone. This area is an old, eroded, rolling peneplain that is characterized by sinkholes and depressions.

Braxton soils occur with the well-drained Maury, McAfee, and Salvisa soils. Braxton soils are cherty and are less friable than the Maury soils. They are deeper to bedrock and are more friable than the moderately deep McAfee and Salvisa soils.

The native vegetation was hardwood forest interspersed with canebrakes.

Profile of Braxton silt loam, 2 to 6 percent slopes, in a tobacco field along Jacks Creek Pike about 100 yards west of Dry Branch Road.

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; few small fragments of chert; slightly acid; gradual, smooth boundary. 6 to 9 inches thick.

B1—8 to 15 inches, brown (7.5YR 4/4) light silty clay loam; weak, fine, subangular blocky structure; friable; few small fragments of chert; few, small, black concretions; medium acid; gradual, wavy boundary. 5 to 8 inches thick.

B21t—15 to 23 inches, reddish-brown (5YR 4/4) cherty light silty clay; moderate, fine, subangular blocky structure; few clay films; firm; common, small, black concretions; strongly acid; gradual, wavy boundary. 7 to 12 inches thick.

B22t—23 to 35 inches, reddish-brown (5YR 4/4) cherty silty clay; moderate, fine, subangular and angular blocky structure; few clay films; firm; sticky and plastic when wet; common, small, black concretions; strongly acid; gradual, wavy boundary. 10 to 15 inches thick.

C—35 to 48 inches, variegated yellowish-red (5YR 4/6) and dark reddish-brown (5YR 3/4) clay intermixed with very pale brown and brownish-yellow weathered chert; massive; very firm; sticky and plastic when wet; few, small, black concretions and common, dark reddish-brown concretionary material; strongly acid.

The thickness of the solum ranges from 2½ to 3½ feet, and the depth to the bedrock is from 3 to 8 feet. The texture of the B21t horizon is silty clay loam in some profiles. In a few places there are chert fragments up to 3 inches in diameter in the surface soil. Chert fragments 1 to 5 inches in diameter make up 10 to 40 percent of the subsoil. In places the color of the Ap horizon is dark brown (7.5YR 3/2), and it ranges to brown (7.5YR 4/4) in eroded areas. The B1 horizon is reddish brown (5YR 4/4) in some places, and the B21t and B22t horizons are yellowish red (5YR 4/6–5/6).

Captina Series

The Captina series consists of nearly level and gently sloping, moderately well drained, medium-textured soils that have a fragipan. These soils are on stream terraces. They formed in material washed mainly from soils of limestone origin.

Captina soils are associated with Armour soils, which are well drained and lack a fragipan, and with Lawrence soils, which are somewhat poorly drained. Captina soils are less gray than Lawrence soils and have fewer mottles in the upper part of the solum.

The native vegetation was hardwood forest and canebrakes. All of the acreage has been cleared. It is used mostly for corn, small grain, hay, and pasture.

Profile of Captina silt loam, 2 to 6 percent slopes, in a pasture field along Royster Road about 2.3 miles northwest of the intersection with U.S. Highway 60.

Ap—0 to 8 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; slightly acid; clear, smooth boundary. 6 to 10 inches thick.

B1—8 to 13 inches, yellowish-brown (10YR 5/4) silt loam; weak, fine and medium, subangular blocky structure; friable; few, small, hard, dark concretions; slightly acid; clear, smooth boundary. 3 to 9 inches thick.

B2—13 to 21 inches, yellowish-brown (10YR 5/4–5/6) light silty clay loam; few, fine, faint mottles of pale brown (10YR 6/3) and strong brown (7.5YR 5/6); moderate, medium, subangular blocky structure; friable; few, small, brown concretions; medium acid; abrupt, smooth boundary. 4 to 10 inches thick.

Bx1—21 to 29 inches, brown (10YR 5/3) light silty clay loam; common, fine, distinct mottles of strong brown (7.5YR 5/6), light gray (10YR 7/2), and light yellowish brown (10YR 6/4); moderate, medium, angular and subangular blocky structure; few clay films; compact and brittle (fragipan); firm; common dark-brown concretions; strongly acid; gradual, smooth boundary. 6 to 10 inches thick.

Bx2—29 to 40 inches, mottled pale-brown (10YR 6/3), strong-brown (7.5YR 5/6), and light-gray (10YR 7/2) silty clay loam; mottles are medium and distinct; weak, medium and coarse, angular blocky structure; few clay films; compact and brittle (fragipan); firm; common, small,

dark-brown concretions; strongly acid; gradual, smooth boundary. 9 to 14 inches thick.

C1cn—40 to 46 inches, black (10YR 2/1) and dark reddish-brown (5YR 3/4) concretions and concretionary material interspersed with yellowish-brown (10YR 5/4) and light-gray (10YR 7/2) silty clay; massive; firm; slightly acid; clear, smooth boundary. 4 to 10 inches thick.

C2—46 to 54 inches +, mottled light brownish-gray (2.5Y 6/2), strong-brown (7.5YR 5/6), and yellowish-brown (10YR 5/4) silty clay; massive; very firm; few dark-brown concretions; slightly acid.

The thickness of the solum ranges from about 2½ to 3½ feet, and that of the alluvium from 3 to 12 feet. In some places, the texture of the B2 and Bx1 horizons is heavy silt loam. In places the Bx1 horizon is mottled and has no dominant color. The depth to the fragipan (Bx horizon) ranges from 18 to 26 inches, and the thickness of the fragipan from about 10 to 20 inches. The number of concretions in the C horizon varies. Some profiles do not have a C1cn horizon.

Culleoka Series

The Culleoka series consists of deep, well drained and somewhat excessively drained soils on narrow, sloping ridgetops and steep side slopes. These soils formed in material weathered from calcareous siltstone.

Culleoka soils are associated with Lowell soils, which are deep soils on the ridgetops, and with Salvisa soils, which are moderately deep soils on the side slopes. Culleoka soils are browner, coarser textured, and more friable than Lowell and Salvisa soils.

The native vegetation was mostly hardwood forest interspersed with canebrakes. Most of the acreage has been cleared, but now about 30 percent has reverted to low-quality timber. The rest is used for pasture, hay, or tobacco, or is idle. Brush is growing on many idle areas.

Profile of Culleoka silt loam, 6 to 12 percent slopes, eroded, in a tobacco field near a farm road about ½ mile south of Jacks Creek Road.

Ap—0 to 8 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; strongly acid; few, small, weathered fragments of siltstone; clear, smooth boundary. 6 to 9 inches thick.

B1—8 to 14 inches, brown (7.5YR 4/4) silt loam; weak, fine and medium, subangular blocky structure; friable; few weathered fragments of siltstone; few, small, black concretions; strongly acid; gradual, smooth boundary. 4 to 8 inches thick.

B2t—14 to 24 inches, brown (7.5YR 4/4) to strong-brown (7.5YR 5/6) silty clay loam; weak, fine and medium, subangular blocky structure; few patchy clay films; friable to firm; common weathered fragments of siltstone up to 8 inches in diameter; few, small, black concretions; strongly acid; gradual, wavy boundary. 8 to 16 inches thick.

B3—24 to 30 inches, brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky structure; friable to firm; many weathered siltstone fragments up to 10 inches in diameter; strongly acid; gradual, wavy boundary. 4 to 8 inches thick.

C—30 to 40 inches +, intermixed layers of brown (7.5YR 4/4) to strong-brown (7.5YR 5/6) silty clay loam, silty clay, and weathered siltstone; common, medium, faint, pale-brown (10YR 6/3) mottles; broken surface of siltstone is yellowish brown (10YR 5/6); strongly acid.

The depth to bedrock ranges from 3 to 8 feet. The color of the B1 horizon ranges to brown (10YR 4/3) and dark yellowish brown (10YR 3/4). The structure of the B2t horizon is moderate in some profiles. The texture of the B2t horizon ranges to heavy silt loam. Siltstone flags, 6 to 10 inches in diameter, occur in the surface soil on the steep slopes.

Donerail Series

The Donerail series consists of deep, moderately well drained soils on broad, nearly level ridges and in gently sloping and moderately sloping areas. These soils have a medium-textured surface layer and a clayey subsoil. They formed in residuum derived from phosphatic limestone. The landform is an old, eroded, nearly level to rolling peneplain. Karst topography, which is characterized by sinks and depressions, is common.

Donerail soils are associated with Maury and Braxton soils, which are deep and well drained, and with McAfee soils, which are moderately deep. Donerail soils are mottled and usually have a less friable subsoil than Maury and Braxton soils.

The native vegetation was hardwood forest interspersed with canebrakes. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Donerail silt loam, 2 to 6 percent slopes, in a pastured field about ¼ mile south of Ironworks Road and 100 yards west of Newtown Road.

A1—0 to 10 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; few, small, black concretions; slightly acid; clear, smooth boundary. 7 to 11 inches thick.

B1—10 to 17 inches, brown (10YR 4/3) silty clay loam; weak to moderate, medium, subangular blocky structure; friable; few black concretions; medium acid; clear, smooth boundary. 4 to 8 inches thick.

B2t—17 to 28 inches, dark yellowish-brown (10YR 4/4) light silty clay; few, fine, faint mottles of pale brown (10YR 6/3) and strong brown (7.5YR 5/6); moderate, medium, subangular blocky structure; common clay films; firm; sticky and slightly plastic; common black concretions; medium acid; clear, smooth boundary. 8 to 14 inches thick.

B3t—28 to 35 inches, mottled light brownish-gray (10YR 6/2), dark yellowish-brown (10YR 4/4), and strong-brown (7.5YR 5/6) silty clay; mottles are fine and distinct; weak, fine and medium, angular blocky structure; common clay films; very firm; many black concretions and common concretionary material; strongly acid; clear, smooth boundary. 5 to 14 inches thick.

Ccn—35 to 49 inches, mottled strong-brown (7.5YR 5/8), grayish-brown (10YR 5/2), and light brownish-gray (2.5Y 6/2) clay; mottles are fine and distinct; massive; very firm; black concretions and concretionary material make up about 50 percent of this horizon; mildly alkaline.

R—49 inches +, phosphatic limestone.

The thickness of the solum ranges from 2½ to 3½ feet, and the depth to bedrock from 3½ to 12 feet. The texture of the B2t horizon is silty clay loam in places. The color of the A1 horizon may be dark brown (7.5YR 3/2); that of the B1 horizon, dark yellowish brown (10YR 4/4); and that of the B2t horizon, brown (7.5YR 4/4). The concretions in the B3t and C horizons range in number from few to many.

Egam Series

The Egam series consists of nearly level, deep, well drained and moderately well drained soils on flood plains. These soils formed in alluvium washed from soils of limestone origin.

Egam soils occur mainly with Huntington soils, which are well drained, and with Lindside soils, which are moderately well drained. Egam soils are darker colored and

finer textured than these associated soils. In places, Egam soils are associated with Lanton soils, which are dark colored and poorly drained or somewhat poorly drained.

The native vegetation was hardwood forest and canebrakes. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Egam silt loam in a pasture field along North Elkhorn Creek near Russell Cave Road.

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; slightly acid; gradual, smooth boundary. 6 to 10 inches thick.

C—8 to 18 inches, dark-brown (10YR 3/3) silty clay loam; moderate, fine, granular and subangular blocky structure; friable to firm; few, small, dark-brown concretions; slightly acid; clear, smooth boundary. 7 to 12 inches thick.

A1b—18 to 31 inches, very dark grayish-brown (10YR 3/2) heavy silty clay loam; weak, fine, granular and subangular blocky structure; firm; somewhat compact; few, small, dark-brown concretions; slightly acid or neutral; gradual, smooth boundary. 10 to 18 inches thick.

C—31 to 46 inches +, dark yellowish-brown (10YR 3/4–4/4) heavy silty clay loam or silty clay; common, fine, faint mottles of dark grayish brown (10YR 4/2); weak, fine, granular and subangular blocky structure; firm; slightly compact; few, small, dark-brown concretions; common fine specks of chert; neutral.

The thickness of the alluvium ranges from 3½ to 12 feet. The texture of the Ap horizon is silt loam or silty clay loam, and the texture of the layers between 8 and 48 inches ranges from silty clay loam to silty clay. The color of the Ap and C horizons is dark brown (7.5YR 3/2) or very dark grayish brown (10YR 3/2) in places, that of the A1b horizon very dark gray (10YR 3/1), and that of the C horizon very dark grayish brown (10YR 3/2).

Fairmount Series

The Fairmount series consists of sloping to steep, very rocky, shallow, somewhat excessively drained soils that occur in rough, broken areas. These soils formed in fine-textured material weathered from argillaceous limestone.

Fairmount soils are associated with Rock land and with Salvisa and McAfee soils, which are moderately deep and well drained or somewhat excessively drained. Fairmount soils are darker colored, finer textured, thinner, rockier, and less well developed than Salvisa and McAfee soils.

The native vegetation was mostly hardwood forest and redcedar. About 60 percent of the acreage has been cleared and is used for pasture; the rest is low-grade woodland and brushland.

Profile of Fairmount silty clay loam, 10 to 30 percent slopes, severely eroded, in a pastured field along Dry Branch Road, south of Jacks Creek Road.

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) heavy silty clay loam; strong, fine and medium, granular structure; friable; few, small, black concretions; few specks of chert; slightly acid; gradual, wavy boundary. 2 to 7 inches thick.

B—3 to 8 inches, very dark grayish-brown (10YR 3/2) silty clay; strong, fine and medium, angular blocky structure; many pressure faces; firm; very sticky and plastic when wet; few black concretions; common specks of chert; neutral; gradual, wavy boundary. 2 to 8 inches thick.

C—8 to 14 inches, variegated very dark gray (10YR 3/1), dark yellowish-brown (10YR 4/4–3/4), and very dark grayish-brown (10YR 3/2) clay; mottles are fine and faint; moderate, medium, angular blocky structure; few pressure faces; very firm; very sticky and very plastic when wet; few black concretions; many specks of chert; neutral or mildly alkaline.

R—14 inches +, argillaceous limestone, generally medium in phosphate.

The depth to bedrock ranges from 10 to 20 inches. The texture of the surface layer is silty clay loam or silty clay, and that of the B horizon ranges from silty clay to clay. Loose limestone slabs, ranging in number from few to many, are on the surface and throughout the profile. The A1 horizon in some places is very dark gray (10YR 3/1) or very dark brown (10YR 2/2); the B horizon, dark grayish brown (10YR 4/2) or dark yellowish brown (10YR 4/4–3/4); and the C horizon, yellowish brown (10YR 5/6).

Huntington Series

The Huntington series consists of deep, well-drained, medium-textured soils on nearly level flood plains and in depressions. These soils formed in alluvium washed from soils underlain by limestone.

Huntington soils are associated with Lindside soils, which are moderately well drained, and with Egam soils, which are well drained or moderately well drained. Huntington soils are browner and less mottled than these associated soils, and they are coarser textured than the Egam soils.

The native vegetation was hardwood forest interspersed with canebrakes. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Huntington silt loam in a pastured field along North Elkhorn Creek.

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; neutral; gradual, smooth boundary. 6 to 9 inches thick.

A1—8 to 28 inches, dark-brown (10YR 3/3–4/3) silt loam; weak, fine, granular structure; very friable; neutral; gradual, smooth boundary. 18 to 22 inches thick.

C1—28 to 37 inches, brown (10YR 4/3) heavy silt loam; weak, fine and medium, granular structure; friable; neutral; clear, smooth boundary. 8 to 10 inches thick.

C2—37 to 54 inches +, dark yellowish-brown (10YR 4/4) light silty clay loam; few, fine, faint mottles of light yellowish brown (10YR 6/4) and light brownish gray (10YR 6/2); weak, medium, granular structure or massive; friable to firm; few, small, black concretions; neutral.

The thickness of the alluvium ranges from about 3 to 15 feet. The texture of the layers between 8 and 54 inches ranges from silt loam to light silty clay loam, and in places the alluvium is stratified with thin layers of sand, silt, and clay. In some places the Ap and A1 horizons are very dark grayish brown (10YR 3/2), and the C2 horizon is brown (10YR 4/3). In some profiles the C1 horizon has some brown and gray mottles.

Lanton Series

The Lanton series consists of deep, poorly drained to somewhat poorly drained, dark-colored soils on flood plains. These soils formed in fine-textured alluvium under the influence of very poor drainage. The content of organic matter is high.

Lanton soils occur mainly with Melvin soils, which are poorly drained, and with Newark soils, which are somewhat poorly drained. Lanton soils are darker colored and finer textured that these associated soils. In places, Lanton soils are associated with Egam soils, which are well drained to moderately well drained. Lanton soils are

grayer and finer textured in the upper horizons than Egam soils.

The native vegetation consisted of water-tolerant trees, canebrakes, and marsh grass. Most of the acreage has been cleared and is used for corn, hay, and pasture.

Profile of Lanton silty clay loam in a hayfield on the east side of Newtown Road about 1 mile south of Ironworks Road:

A1—0 to 23 inches, very dark grayish-brown (10YR 3/2) silty clay loam; moderate, fine, granular structure; friable; neutral; gradual, smooth boundary. 12 to 24 inches thick.

C1g—23 to 31 inches, very dark gray (10YR 3/1) silty clay; common, fine, distinct, olive-brown (2.5Y 4/4) mottles; massive; firm; sticky and slightly plastic when wet; few, small, black concretions; neutral; gradual, smooth boundary. 6 to 14 inches thick.

C2g—31 to 42 inches, dark-gray (10YR 4/1) clay; many, medium, faint mottles of very dark gray (10YR 3/1) and common, fine, distinct mottles of light olive brown (2.5Y 5/4); massive; very firm; very sticky and plastic when wet; common black concretions; few fine fragments of chert; neutral; clear, smooth boundary. 8 to 14 inches thick.

C3g—42 to 48 inches +, mottled dark-gray (10YR 4/1), olive-brown (2.5Y 4/4), and light olive-brown (2.5Y 5/6) clay; massive; very firm; very sticky and plastic when wet; many black concretions; few fine fragments of chert; neutral.

The thickness of the alluvium ranges from 4 to 10 feet. The color of the A1 horizon ranges to very dark gray (10YR 3/1), and that of the C1g horizon to dark gray (10YR 4/1).

Lawrence Series

The Lawrence series consists of nearly level, somewhat poorly drained, medium-textured soils that have a fragipan. These soils occur on stream terraces and broad ridgetops. They formed in material weathered from limestone and calcareous shale.

Lawrence soils are associated with Captina and Mercer soils, which are moderately well drained, and with Loudon soils, which are somewhat poorly drained. Lawrence soils are more grayish and more mottled in the upper part than Captina and Mercer soils. They differ from Loudon soils in having a fragipan rather than a plastic clayey subsoil.

The native vegetation consisted mainly of water-tolerant hardwoods and canebrakes. Most of the acreage has been cleared. The cleared acreage is used mostly for pasture; a few areas are used for corn.

Profile of Lawrence silt loam in a pastured field along U.S. Highway 60 west of Royster Road.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; few, fine, faint mottles of brown (7.5YR 4/4) and few, fine, distinct mottles of pale olive (5Y 6/3); weak, fine, granular structure; very friable; few, small, dark-brown concretions; medium acid; clear, smooth boundary. 6 to 9 inches thick.

B1—8 to 13 inches, brown (10YR 5/3) silt loam; common, fine, faint mottles of light gray (5Y 7/2) and few, fine, distinct mottles of yellowish brown (10YR 5/4); weak, medium and fine, subangular blocky structure; friable; few, small, dark-brown concretions; strongly acid; clear, smooth boundary. 4 to 7 inches thick.

B2t—13 to 20 inches, pale-brown (10YR 6/3) heavy silt loam; many, medium, distinct mottles of yellowish brown (10YR 5/4), light brownish gray (10YR 6/2), and light yellowish brown (2.5Y 6/4); moderate, medium, subangular blocky structure; friable; common dark-brown concretions; very strongly acid; clear, smooth boundary. 5 to 8 inches thick.

Bxg—20 to 33 inches, light-gray (5Y 7/2) light silty clay loam; common, medium, distinct mottles of yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4); weak, medium, subangular blocky structure; firm; compact and brittle; many dark-brown concretions; very strongly acid; clear, smooth boundary. 10 to 15 inches thick.

Cg—33 to 48 inches +, mottled gray (10YR 5/1), olive-brown (2.5Y 4/4), and light-gray (5Y 7/2) silty clay; massive; very firm; sticky and plastic when wet; common, small and medium, dark-brown concretions; medium acid.

The depth to the fragipan ranges from about 15 to 24 inches, and the thickness of the fragipan ranges from about 10 to 24 inches. The depth to bedrock ranges from 4 to 15 feet. In some profiles, the B2t horizon is silty clay loam. The color of the Ap horizon ranges to brown (10YR 5/3) and grayish brown (10YR 5/2), that of the B1 horizon to pale brown (10YR 6/3), and that of the B2t horizon to light brownish gray (10YR 6/2).

Lindside Series

The Lindside series consists of nearly level, deep, moderately well drained, medium-textured soils on flood plains. These soils formed in alluvium washed from soils derived mainly from limestone. Lindside soils are neutral or slightly acid.

Lindside soils occur mainly with Huntington soils, which are well drained, Egam soils, which are well drained or moderately well drained and finer textured, and Newark soils, which are somewhat poorly drained. Lindside soils are more gray and are mottled nearer the surface than Huntington soils. They are darker colored and less profusely mottled than Newark soils. In places, Lindside soils are associated with Melvin and Lanton soils, which are poorly drained.

The native vegetation was hardwood forest interspersed with canebrakes. All of the acreage has been cleared and is used for cultivated crops, hay, and pasture.

Profile of Lindside silt loam in a cornfield across U.S. Highway 68 from South Elkhorn Christian Church.

Ap—0 to 8 inches, dark-brown (10YR 4/3-3/3) silt loam; weak, fine, granular structure; very friable; neutral; clear, smooth boundary. 7 to 10 inches thick.

C1—8 to 17 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; neutral; gradual, smooth boundary. 7 to 10 inches thick.

C2—17 to 30 inches, dark grayish-brown (10YR 4/2) silt loam; common, fine, faint, grayish-brown (10YR 5/2) and very dark grayish-brown (10YR 3/2) mottles; weak, fine, granular structure; friable; neutral; clear, smooth boundary. 11 to 15 inches thick.

C3g—30 to 48 inches +, gray (10YR 5/1) to dark-gray (10YR 4/1) silt loam; common, fine, distinct mottles of dark yellowish brown (10YR 4/4); massive; friable to firm; slightly alkaline.

The thickness of the alluvium ranges from about 3 to 12 feet. The texture of the layers between 8 and 48 inches is silt loam or light silty clay loam. In places, this part of the profile is stratified with thin layers of sand, silt, or clay. The color of the C3g horizon is light brownish gray (10YR 6/2) in places.

Loradale Series

The Loradale series consists of deep, gently sloping and sloping soils on uplands. These soils formed in residuum derived from limestone and from thin layers of calcareous shale. The landform is an old, eroded, gently rolling to undulating peneplain. The surface layer of these soils

is medium textured, and the subsoil is clayey and plastic.

Loradale soils are associated with Lowell, Mercer, Salvisa, Maury, and McAfee soils. Loradale soils have brown, friable upper horizons, like those of Maury soils. They have yellowish, plastic lower horizons, like those of Lowell soils. Loradale soils are better drained than Mercer soils, which have a fragipan. They have a thicker and more friable solum than Salvisa and McAfee soils, and they are more acid than Salvisa soils.

The native vegetation was hardwood forest interspersed with canebrakes. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Loradale silt loam, 2 to 6 percent slopes, in a pastured field on the south side of Ironworks Road west of Newtown Road.

Ap—0 to 7 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; few, small, black concretions; slightly acid; gradual, smooth boundary. 5 to 9 inches thick.

A1—7 to 11 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; few, small, black concretions; slightly acid; clear, smooth boundary. 2 to 6 inches thick.

B1—11 to 18 inches, brown (7.5YR 4/4) light silty clay loam; weak, fine and medium, subangular blocky structure; friable to firm; few, small, black concretions; slightly acid; clear, smooth boundary. 5 to 9 inches thick.

B21t—18 to 23 inches, brown (7.5YR 4/4) to reddish-brown (5YR 4/4) silty clay loam; moderate, medium, angular and subangular blocky structure; clay films are noticeable; firm; common, small, black concretions; medium acid; clear, smooth boundary. 5 to 10 inches thick.

B22t—23 to 31 inches, strong-brown (7.5YR 5/6) to brown (7.5YR 4/4) silty clay; few, fine, distinct, pale-brown (10YR 6/3) mottles; moderate, medium, angular blocky structure; common clay films; very firm; sticky and slightly plastic when wet; many black concretions; strongly acid; clear, smooth boundary. 6 to 10 inches thick.

B3t—31 to 42 inches, yellowish-brown (10YR 5/4–5/6) silty clay or clay; common, medium, faint mottles of strong brown (7.5YR 5/8) and pale brown (10YR 6/3); moderate, medium, angular blocky structure; clay films are common; very firm; sticky and plastic when wet; common brown concretions; very strongly acid; gradual, wavy boundary. 6 to 12 inches thick.

C—42 to 54 inches +, mottled yellowish-brown (10YR 5/6), pale-brown (10YR 6/3), and light brownish-gray (10YR 6/2) clay; massive; extremely firm; very sticky and very plastic when wet; very strongly acid.

The thickness of the solum ranges from 2½ to 4 feet, and the depth to bedrock from about 4 to 10 feet. The texture of the B21t horizon is light silty clay in some profiles. The color of the Ap horizon is brown (10YR 3/3–4/3) in eroded areas. In places, the B1 horizon is dark reddish brown (5YR 3/4).

Loudon Series

The Loudon series consists of gently sloping or sloping, deep, somewhat poorly drained soils on broad ridgetops and around the heads of drains. These soils have a medium-textured surface soil, and the finer textured part of the subsoil is clayey and plastic. They formed in residuum derived from interbedded limestone and calcareous shale. The landform is an old, eroded, gently rolling to undulating peneplain.

Loudon soils are associated with Lowell soils, which are well drained to moderately well drained, with Mercer soils, which are moderately well drained, and with Lawrence soils, which are somewhat poorly drained. Loudon soils are grayer than Lowell soils. They lack the fragipan that is typical of Mercer and Lawrence soils.

The native vegetation was hardwood forest interspersed with canebrakes. All of the acreage has been cleared, and most of it is used for hay and pasture; a few areas are planted to corn.

Profile of Loudon silt loam, phosphatic, 2 to 6 percent slopes, in a pasture field on the west side of Russell Cave Road and about 30 yards south of the Bourbon County line.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; few, small, black concretions; slightly acid; clear, smooth boundary. 6 to 9 inches thick.

B21t—7 to 17 inches, yellowish-brown (10YR 5/6) silty clay loam; few, medium, faint, pale-brown (10YR 6/3) mottles; moderate, fine and medium, subangular blocky structure; common clay films; firm; few, small, black concretions; strongly acid; clear, smooth boundary. 8 to 12 inches thick.

B22t—17 to 24 inches, yellowish-brown (10YR 5/4) silty clay; many, fine, distinct, light-gray (10YR 7/2) and few, fine, faint, strong-brown (7.5YR 5/6) mottles; moderate, medium, angular blocky structure; common clay films; very firm; sticky and plastic when wet; few, small, black concretions; strongly acid; gradual, smooth boundary. 6 to 9 inches thick.

B3t—24 to 30 inches, mottled strong-brown (7.5YR 5/6), light-gray (10YR 7/2), and yellowish-red (5YR 5/8) clay; mottles are fine and distinct; weak, medium, blocky structure to massive; few clay films; very firm; very sticky and very plastic when wet; few, small, black concretions; very strongly acid; gradual, smooth boundary. 5 to 7 inches thick.

C1—30 to 37 inches, mottled strong-brown (7.5YR 5/6) and light brownish-gray (10YR 6/2) clay; mottles are medium and distinct; massive; extremely firm; very sticky and very plastic when wet; few, small, black concretions; very strongly acid; clear, smooth boundary. 6 to 8 inches thick.

C2—37 to 45 inches +, mottled yellowish-brown (10YR 5/4–5/6), light-gray (10YR 7/2), and light brownish-gray (10YR 6/2) clay; massive; extremely firm; very sticky and very plastic when wet; common, small, black concretions; very strongly acid.

The thickness of the solum ranges from about 26 to 36 inches, and the depth to bedrock from about 3½ to 8 feet. In some places the Ap horizon is grayish brown (10YR 5/2) or brown (10YR 5/3), and in some, the B22t horizon is mottled yellowish brown, light gray, or strong brown, with no dominant color.

Lowell Series

The Lowell series consists of gently sloping to strongly sloping, deep, well-drained soils. These soils formed in residuum derived from interbedded limestone and calcareous shale. The landform is an old, eroded, undulating and gently rolling peneplain.

Lowell soils are associated with Loradale, Mercer, Salvisa, Loudon, and Maury soils. Lowell soils have a yellower, less friable subsoil than Loradale and Maury soils. They are deeper to rock and have a thicker, more acid solum than Salvisa soils. Lowell soils are better drained than Loudon soils, which are somewhat poorly drained, and Mercer soils, which are moderately well drained and have a fragipan.

The native vegetation was hardwood forest interspersed with canebrakes. Most of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Lowell silt loam, 2 to 6 percent slopes, in a pastured field along Todds Road about 0.2 mile west of Cleveland Road.

Ap—0 to 9 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; few, small, black concretions; slightly acid; gradual, wavy boundary. 8 to 11 inches thick.

B1t—9 to 16 inches, dark yellowish-brown (10YR 4/4) silty clay loam; intrusions of dark-brown material from the Ap; weak, medium, subangular blocky structure; few patchy clay films; firm; few black concretions; medium acid; clear, smooth boundary. 5 to 7 inches thick.

B2t—16 to 26 inches, yellowish-brown (10YR 5/4–5/6) silty clay; moderate, medium, angular and subangular blocky structure; many clay films; very firm; sticky and plastic when wet; few, small, black concretions; strongly acid; clear, smooth boundary. 8 to 12 inches thick.

B3t—26 to 33 inches, yellowish-brown (10YR 5/6) silty clay or clay; common, fine, distinct, pale-brown (10YR 6/3) mottles; weak, medium, angular blocky structure; common clay films; very firm; very sticky and plastic when wet; common black concretions; very strongly acid; gradual, smooth boundary. 5 to 8 inches thick.

C—33 to 48 inches +, yellowish-brown (10YR 5/6) clay; many light brownish-gray (10YR 6/2) and strong-brown (7.5YR 5/6) mottles; massive; extremely firm; very sticky and very plastic when wet; common black concretions and concretionary material; very strongly acid.

The thickness of the solum ranges from 28 to 42 inches, and the depth to bedrock from 3 to 8 feet. In severely eroded areas the texture of the Ap horizon is silty clay loam. The Ap horizon ranges from dark grayish brown (10YR 4/2) to dark yellowish brown (10YR 4/4) in severely eroded areas. The lower part of the B2t horizon in some places contains a few pale-brown or light yellowish-brown mottles.

Maury Series

The Maury series consists of nearly level to strongly sloping, deep, well-drained, medium-textured soils on broad ridgetops and gentle hillsides. These soils have a very friable surface layer and a friable or firm, clayey subsoil. They formed mostly in material weathered from phosphatic limestone but partly in a mantle of silt. The landform is an old, eroded, nearly level to undulating peneplain. Karst topography, which is characterized by sinkholes and depressions, is common.

Maury soils are associated with McAfee, Salvisa, Braxton, Donerail, Loradale, and Lowell soils. Maury soils have a thicker, more friable, and more acid solum than McAfee and Salvisa soils. They are more friable and much less cherty than Braxton soils. Maury soils have a redder, more friable subsoil than Loradale and Lowell soils. They are better drained and more friable than Donerail soils, which are moderately well drained.

The native vegetation was hardwood forest interspersed with tall grass and canebrakes. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Maury silt loam, 0 to 2 percent slopes, in a tobacco field along Dedman Lane about 200 feet east of Fort Springs Road.

Ap—0 to 8 inches, dark-brown (7.5YR 3/2) silt loam; moderate, fine, granular structure; very friable; slightly acid; clear, smooth boundary. 6 to 9 inches thick.

A1—8 to 14 inches, dark-brown (7.5YR 3/2–4/4) silt loam; moderate, fine, granular structure; very friable; slightly acid; clear, smooth boundary. 0 to 10 inches thick.

B1—14 to 21 inches, reddish-brown (5YR 4/4) to brown (7.5YR 4/4) silty clay loam; moderate, fine, subangular blocky structure; few clay films; friable; few, small, black concretions; medium acid; gradual, smooth boundary. 0 to 8 inches thick.

B21t—21 to 38 inches, reddish-brown (5YR 4/4) light silty clay; moderate, fine and medium, subangular blocky structure; few clay films; friable to firm; few, small, black concretions; strongly acid; gradual, wavy boundary. 8 to 20 inches thick.

B22t—38 to 66 inches, yellowish-red (5YR 4/6) silty clay; moderate, fine and medium, subangular blocky structure; common clay films; firm; sticky and slightly plastic when wet; common, small, black concretions; few fine specks of chert; strongly acid; gradual, wavy boundary. 10 to 36 inches thick.

B3t—66 to 78 inches, yellowish-red (5YR 4/6) clay; common, fine, faint, dark-red (2.5YR 3/6) and strong-brown (7.5YR 5/6) variegations; moderate, fine and medium, blocky structure; common clay films; firm; sticky and plastic when wet; common, small, black concretions; strongly acid; gradual, wavy boundary. 10 to 20 inches thick.

C—78 to 88 inches, yellowish-red (5YR 4/6) clay; many, fine, faint, brown (7.5YR 4/4) and common, fine, distinct, light yellowish-brown (10YR 6/4) variegations; massive; very firm; sticky and plastic when wet; many specks of chert; many, small, dark-brown and black concretions and abundant concretionary material; medium acid.

The thickness of the solum ranges from about 2½ to 8½ feet, and the depth to bedrock from about 3 to 12 feet. The texture of the Ap horizon is silty clay loam in severely eroded areas, and that of the B21t horizon is silty clay loam in places. The color of the Ap horizon may be dark brown (10YR 3/3) or, in severely eroded areas, reddish brown (5YR 4/4). The color of the B1 horizon ranges to dark reddish brown (5YR 3/4–3/3), that of the B21t to yellowish red (5YR 4/6), and that of the B22t and B3t horizons to dark red (2.5YR 3/6).

McAfee Series

The McAfee series consists of moderately deep and shallow, well-drained and somewhat excessively drained soils on gently sloping to moderately steep slopes. These soils have a medium-textured surface layer and a clayey, very plastic subsoil. They formed in residuum derived from phosphatic limestone. The landform is rolling to moderately steep. Karst topography, which is characterized by many sinkholes, is common.

McAfee soils are associated with Maury, Braxton, and Loradale soils, which are deep and well drained, with Salvisa soils, which are moderately deep, and with Fairmount soils, which are shallow. McAfee soils are more acid than either Salvisa or Fairmount soils. They contain more phosphate than Salvisa soils, and they have a reddish-brown rather than a yellowish-brown subsoil. They have a thicker, redder solum and better differentiated horizons than Fairmount soils.

The native vegetation was hardwood forest interspersed with canebrakes and patches of tall grass. Most of the acreage has been cleared and is used for hay and pasture. A few steep slopes are in timber, and some ridgetops are cultivated.

Profile of McAfee silt loam, 6 to 12 percent slopes, in a pastured field along U.S. Highway 68 about 200 yards southwest of Ironworks Road.

Ap—0 to 7 inches, dark-brown (7.5YR 3/2) silt loam; moderate, fine, granular structure; very friable; slightly acid; clear, smooth boundary. 5 to 8 inches thick.

B2t—7 to 18 inches, reddish-brown (5YR 4/4) silty clay; strong, medium, subangular blocky structure; few clay films; very firm; very sticky and plastic when wet; common, small and medium, dark-brown concretions; common

small specks of chert; medium acid; gradual, smooth boundary. 6 to 18 inches thick.

C—18 to 26 inches, dark reddish-brown (5YR 3/4) clay; few, fine, distinct variegations of strong brown (7.5YR 5/6); massive; extremely firm; very sticky and very plastic when wet; many, small and medium, dark-brown concretions; specks of chert; slightly acid; 4 to 12 inches thick.

R—26 inches +, phosphatic limestone.

The thickness of the solum ranges from about 10 to 24 inches, and the depth to bedrock from about 15 to 36 inches. The texture of the Ap horizon is silty clay loam in eroded areas and silty clay in severely eroded areas. The color of the Ap horizon ranges to dark brown (10YR 3/3) and, in severely eroded areas, to dark reddish-brown (5YR 3/4). The color of the B2t horizon ranges to dark reddish-brown (5YR 3/4) and brown (7.5YR 4/4), and that of the C horizon ranges to reddish brown (5YR 4/4) and brown (7.5YR 4/4). The reaction of the B2t horizon is strongly acid in some profiles.

Melvin Series

The Melvin series consists of nearly level, deep, poorly drained, medium-textured soils on flood plains. These soils formed in alluvium derived from limestone and calcareous shale.

Melvin soils are associated with Newark and Lanton soils. They are grayer and more poorly drained than Newark soils. Melvin soils are lighter colored, more friable, and less fine textured than Lanton soils.

The native vegetation consisted of water-tolerant trees and canebrakes. Most of the acreage is still in woodland or is used for pasture.

Profile of Melvin silt loam in a pasture field about ⅓ mile north of Hume Bedford Road and ½ mile east of Russell Cave Road.

Ap—0 to 8 inches, grayish-brown (10YR 5/2) silt loam; few, fine, distinct mottles of dark yellowish brown (10YR 4/4); weak, fine, granular structure; very friable; few, small, black concretions; neutral; clear, smooth boundary. 6 to 9 inches thick.

B1g—8 to 18 inches, gray (10YR 6/1) silt loam; common, fine, distinct mottles of dark yellowish brown (10YR 4/4) and very dark grayish brown (10YR 3/2); weak, fine, granular structure; friable; few, small, black concretions; neutral; gradual, smooth boundary. 8 to 12 inches thick.

B2g—18 to 31 inches, gray (10YR 5/1) heavy silt loam; common, fine, distinct mottles of dark yellowish brown (10YR 4/4) and few, fine, distinct mottles of yellowish brown (10YR 5/6) and very dark grayish brown (10YR 3/2); massive; friable to firm; common black concretions; neutral; gradual, smooth boundary. 11 to 15 inches thick.

B3g—31 to 48 inches +, gray (10YR 5/1–6/1) silty clay loam; many, fine, distinct mottles of yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4); massive; firm; sticky and slightly plastic when wet; many black concretions; mildly alkaline.

The thickness of the alluvium ranges from about 3½ to 12 feet. The texture of the surface layer is generally silt loam, but the texture between the depths of 8 inches and 48 inches ranges from silt loam to light silty clay loam. The alluvium may be stratified with thin layers of sand, silt, and clay. In places, the Ap and B1g horizons are light brownish gray (10YR 6/2 or 2.5Y 6/2).

Mercer Series

The Mercer series consists of nearly level to sloping, moderately well drained, medium-textured soils that have a fragipan. These soils are on broad ridgetops and around the head of drains. They formed in material that weathered from limestone interbedded with thin layers of calcareous shale.

Mercer soils are associated with Loradale and Lowell soils, which are well drained, with Russellville soils, which are well drained to moderately well drained, and with Loudon and Lawrence soils, which are somewhat poorly drained. Mercer soils have a fragipan in the lower part of the subsoil; Loradale, Lowell, and Loudon soils have a clayey, plastic lower subsoil.

The native vegetation was hardwood forest interspersed with canebrakes and patches of tall grass. Most of the acreage has been cleared and is used for corn, small grain, hay, and pasture.

Profile of Mercer silt loam, 0 to 2 percent slopes, in a pastured field on the west side of Cleveland Road about 0.1 mile north of the railroad tracks.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; medium acid; clear, smooth boundary. 6 to 9 inches thick.

B1—8 to 14 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; medium acid; clear, smooth boundary. 4 to 7 inches thick.

B2—14 to 21 inches, yellowish-brown (10YR 5/6–5/4) silty clay loam; few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, fine, angular blocky structure and weak, medium, subangular blocky structure; firm; few, small, black concretions; strongly acid; clear, smooth boundary. 7 to 10 inches thick.

Bx1—21 to 28 inches, mottled yellowish-brown (10YR 5/4–5/6), light yellowish-brown (10YR 6/4), and dark yellowish-brown (10YR 4/4) silty clay loam; mottles are fine and faint; weak, fine and medium, angular blocky structure; few clay films; firm and compact; many black concretions and much concretionary material; strongly acid; gradual, smooth boundary. 4 to 12 inches thick.

Bx2—28 to 38 inches, mottled dark yellowish-brown (10YR 4/4), light yellowish-brown (10YR 6/4), and light brownish-gray (10YR 6/2) silty clay loam; weak, fine and medium, angular blocky structure; few clay films; firm and very compact; many black concretions and much concretionary material; very strongly acid; clear, smooth boundary. 8 to 12 inches thick.

C—38 to 48 inches +, yellowish-brown (10YR 5/4–5/6) clay; many, medium, faint, light brownish-gray (10YR 6/2) and light-gray (10YR 7/2) mottles; massive; very firm; very sticky and very plastic when wet; common, small, black concretions; very strongly acid.

The depth to the fragipan ranges from 15 to 26 inches, and the thickness of the pan ranges from 12 to 24 inches. The depth to bedrock ranges from about 5 to 10 feet. The texture of the B2 and Bx1 horizons ranges from light silty clay loam to heavy silt loam. In places, especially in eroded areas, the color of the Ap horizon ranges to brown (10YR 4/3). In places, the Bx1 horizon has mottles that have a chroma of 2 or less. In some profiles, the C horizon is mottled and has no dominant color.

Newark Series

The Newark series consists of nearly level, deep, somewhat poorly drained, medium-textured soils on flood plains. These soils formed in alluvium washed from soils derived from limestone and calcareous shale.

Newark soils occur mainly with Lindside soils, which are moderately well drained, and with Melvin soils, which are poorly drained. Newark soils are mottled at shallower depths than Lindside soils and are less gray than Melvin soils. In places, Newark soils are associated with Lanton soils, which are dark colored, fine textured, and poorly drained or somewhat poorly drained.

The native vegetation was a forest of water-tolerant hardwoods, interspersed with canebrakes. Most of the acreage has been cleared and is used for hay and pasture; a few drained areas are cultivated.

Profile of Newark silt loam in a pastured field along Todds Road about ½ mile northwest of Walnut Hill Road.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; neutral; clear, smooth boundary. 6 to 8 inches thick.

A1—7 to 11 inches, dark grayish-brown (10 YR 4/2) silt loam; few, fine, faint mottles of grayish brown (10YR 5/2) and yellowish brown (10YR 5/4); weak, fine, granular structure; very friable; few, small, black concretions; neutral; clear, smooth boundary. 3 to 5 inches thick.

B1g—11 to 18 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct mottles of yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4); weak, fine, granular structure; friable; few, small, black concretions and some concretionary material; neutral; gradual, smooth boundary. 6 to 9 inches thick.

B2g—18 to 33 inches, gray (10YR 5/1) silt loam; common, medium, distinct mottles of dark yellowish brown (10YR 4/4); massive; friable to firm; common black concretions and concretionary material; neutral; gradual, smooth boundary. 13 to 17 inches thick.

B3g—33 to 48 inches +, gray (10YR 5/1) light silty clay loam; many, medium, distinct mottles of yellowish brown (10YR 3/6) and dark yellowish brown (10YR 4/4); massive; firm; many black concretions and abundant concretionary material; neutral.

The thickness of the alluvium ranges from about 3½ to 12 feet. The texture of the surface layer is generally silt loam, but the texture between the depths of 7 inches and 48 inches ranges from silt loam to light silty clay loam. The alluvium may be stratified with thin layers of sand, silt, and clay. The color of the Ap horizon ranges to brown (10YR 4/3).

Russellville Series

The Russellville series consists of gently sloping and sloping, well drained and moderately well drained, medium-textured soils that have a fragipan. These soils are on broad ridgetops and gentle hillsides. They formed in a mantle of silt over limestone residuum.

Russellville soils are associated with Loradale, Maury, Armour, and Mercer soils. They are less well drained than Loradale and Maury soils and have a coarser textured subsoil. They are less well drained than Armour soils, and they have a fragipan in the lower part of the subsoil. Russellville soils are browner and better drained than Mercer soils and have a thicker fragipan.

The native vegetation was hardwood forest interspersed with canebrakes and patches of tall grass. All of the acreage has been cleared and is used for row crops, small grain, hay, and pasture.

Profile of Russellville silt loam, 2 to 6 percent slopes, in a hayfield along Interstate Highway 75 about 0.4 mile south of Todds Road.

Ap—0 to 8 inches, dark-brown (10YR 4/3–3/3) silt loam; weak, fine, granular structure; very friable; few, small, dark-brown concretions; medium to strongly acid; clear, smooth boundary. 6 to 9 inches thick.

B1—8 to 13 inches, brown (7.5YR 4/4) heavy silt loam; weak, fine and medium, subangular blocky structure; few clay films; friable; few, small, dark-brown concretions; strongly acid; clear, smooth boundary. 3 to 10 inches thick.

B21t—13 to 24 inches, brown (7.5YR 4/4) to strong-brown (7.5YR 5/6) silty clay loam; moderate, medium, angular and subangular blocky structure; common clay films; friable to firm; few, small, dark-brown concretions; strongly acid; gradual, smooth boundary. 8 to 13 inches thick.

B22t—24 to 33 inches, strong-brown (7.5YR 5/6) silty clay loam; few, fine, distinct mottles of pale brown (10YR 6/3), light gray (10YR 7/2), and dark reddish brown (5YR 4/4); moderate, medium, angular and subangular blocky structure; common clay films; firm; common, small, black concretions; very strongly acid; clear, smooth boundary. 6 to 12 inches thick.

Bx—33 to 48 inches, mottled strong-brown (7.5YR 5/6), light yellowish-brown (10YR 6/4), light-gray (10YR 7/2), and yellowish-red (5YR 5/8) silty clay loam; weak, medium, angular blocky structure; firm; compact; common, small, black concretions; very strongly acid; gradual, smooth boundary. 10 to 18 inches thick.

C—48 to 62 inches, mottled strong-brown (7.5YR 5/8), light yellowish-brown (10YR 6/4), red (2.5YR 4/8), and light-gray (10YR 7/2) heavy silty clay loam or silty clay; massive; firm to very firm; many black concretions; very strongly acid.

The depth to the fragipan ranges from about 28 to 36 inches, and the thickness of the pan ranges from about 10 to 18 inches. The depth to bedrock ranges from about 5 to 10 feet. The color of the Ap horizon ranges to brown (7.5YR 4/4) in eroded areas.

Salvisa Series

The Salvisa series consists of moderately deep and shallow, well drained and somewhat excessively drained soils on uplands adjacent to streams and drainageways. These soils have a surface layer of silty clay loam and a clayey, very plastic subsoil. They formed in residuum derived from limestone and calcareous shale.

Salvisa soils are associated with Maury, Loradale, Braxton, Lowell, Culleoka, McAfee, and Fairmount soils. They have a thinner, more plastic solum and are shallower to rock than Maury, Loradale, Braxton, and Culleoka soils. They resemble Lowell soils but have a thinner, less acid solum in which plastic clay is nearer the surface. Salvisa soils have a yellower, less acid subsoil than McAfee soils. They have a thicker solum, better differentiated horizons, and fewer rock outcrops than Fairmount soils.

The native vegetation was hardwood forest and a few canebrakes. About 80 percent of the acreage has been cleared. The cleared acreage is used mostly for hay and pasture; a few gentle slopes are used for corn and small grain.

Profile of Salvisa silty clay loam, 2 to 6 percent slopes, eroded, in a pastured field along Jacks Creek Road about 250 yards north of Spears Road.

Ap—0 to 7 inches, very dark grayish-brown (10YR 3/2–4/2) silty clay loam; moderate, fine, granular and subangular blocky structure; friable; slightly acid; clear, smooth boundary. 5 to 9 inches thick.

B2t—7 to 16 inches, dark yellowish-brown (10YR 4/4) silty clay; moderate, medium, angular blocky structure; many brown (10YR 5/3) clay films; very firm; sticky and plastic when wet; few black concretions; slightly acid; gradual, smooth boundary. 4 to 16 inches thick.

B3t—16 to 21 inches, yellowish-brown (10YR 5/4–5/6) clay; common, fine, faint, light yellowish-brown (10YR 6/4) and light brownish-gray (10YR 6/2) mottles; weak, coarse, angular blocky structure to massive; common clay films and pressure faces; very firm; very sticky and plastic when wet; common black concretions and concretionary material; neutral; gradual, smooth boundary. 3 to 8 inches thick.

C—21 to 28 inches, yellowish-brown (10YR 5/6) clay; many, medium, faint, light brownish-gray (10YR 6/2) and light

yellowish-brown (10YR 6/4) mottles; massive; extremely firm; very sticky and very plastic when wet; few black concretions and common concretionary material; mildly alkaline.

R—28 inches +, interbedded limestone and calcareous shale.

The thickness of the solum ranges from about 12 to 28 inches, and the depth to bedrock from about 18 to 36 inches. The texture of the Ap horizon is silty clay in severely eroded areas. A few of the deeper profiles have a thin B1 horizon of silty clay loam. The color of the Ap horizon ranges to dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) in severely eroded areas. In places, the B2t horizon is yellowish brown (10YR 5/4–5/6) and the B3t and C horizons are mottled and have no dominant color. Other colors in the B3t and C horizons are olive brown (2.5Y 4/4) and light olive brown (2.5Y 5/4). The reaction of the B horizon ranges from neutral to slightly acid.

General Nature of the County

Fayette County was organized by the Virginia legislature in 1780 and named in honor of Marquis de la Fayette. Fayette County, along with Lincoln and Jefferson, made up what is now the State of Kentucky, but in 1780 the territory belonged to Virginia. From the original Fayette County, several other counties have since been formed.

In 1781 Lexington was selected as the county seat. Lexington was surrounded by an agricultural area, and the town began to attract commercial enterprises that were oriented to agriculture. In more recent years, Lexington has become an important manufacturing center. Several large industrial firms have built plants there.

The population of Fayette County has increased rapidly, largely because of industrial and commercial growth and the expansion of colleges. The University of Kentucky, Transylvania College, and College of the Bible are located in this county.

Physiography, Geology, Relief, and Drainage

Fayette County is mostly in the Inner Bluegrass physiographic area, but about 1,500 acres in the extreme southeastern part is in the Hills of the Bluegrass area. The exposed rock in these areas is of Ordovician age (*3*).

The Inner Bluegrass physiographic area is underlain by limestone of the Cynthiana, Lexington, and Highbridge formations. The Cynthiana formation is in the east-central part of the county. It is mostly limestone, but it is interbedded with thin layers of calcareous shale. Lowell, Loradale, and Mercer soils overlie this formation. The Highbridge formation is along the Kentucky River Gorge. It is massive limestone and is the oldest exposed rock in the State. The Lexington formation underlies most of the Inner Bluegrass area. It is thin-bedded, shaly limestone that is mostly phosphatic. Maury and McAfee soils, generally high in phosphate, commonly occur over the Lexington formation.

The Hills of the Bluegrass physiographic area is underlain by calcareous shale, siltstone, and limestone of the Eden and Garrard formations. These are the youngest exposed rocks in the county.

One of the important geological features of Fayette County is the Cincinnati Arch, which controls the outcrop pattern in central Kentucky. The Cincinnati Arch crosses the county in a northeast-southwest direction.

Two major fault systems, the Hickman fault and the Kentucky River fault, and several smaller ones, occur in this county. The Hickman fault extends from Jessamine County to Bourbon County, roughly parallel to the axis of the Cincinnati Arch. In the southern part of the county, calcareous shale and siltstone are exposed along this fault. The Kentucky River fault intersects the southern tip of Fayette County. It generally marks the dividing line between the Inner Bluegrass and the Hills of the Bluegrass physiographic areas and that between the Fairmount-McAfee-Rock land soil association and the Salvisa-Culleoka soil association.

Most of Fayette County is an old, eroded peneplain. Slopes are mostly gentle or undulating. In hilly areas, the exposed rocks are less resistant to erosion, and streams have cut deep, narrow valleys that have long, steep slopes and sharp-crested ridges. Limestone bluffs occur where short tributary streams flow through gorges to the Kentucky River.

In the southeastern quarter of this county, surface drainage is provided by Bonne Creek, Hickman Creek, and the Kentucky River and its immediate small tributaries. In the rest of the county, North and South Elkhorn Creeks and their tributaries furnish surface drainage. All surface water eventually drains into the Kentucky River. Sinkholes, through which surface water passes into underground channels, are common in places.

Climate [6]

The climate of Fayette County is temperate. Temperature, rainfall, and humidity are favorable for many kinds of plant and animal life. Winters are cool, and summers are warm. Rainfall is fairly well distributed through the year. There is no distinct wet or dry season. Data on temperature and precipitation are given in table 8. The probabilities of freezing temperatures after specified dates in spring and before specified dates in fall are given in table 9. In the southern part of the county, the average length of the growing season is 200 days, and in the northern part, it is 190.

In winter, a daily freeze-thaw cycle is normal. The nighttime temperature drops to below 32°F. on an average of 98 times a winter, but on all but 20 of the 98 days the daytime temperature rises above freezing. A temperature of 0 or lower occurs on an average of 2 days a winter.

Ordinarily, the supply of moisture is ample throughout the year, though occasionally precipitation may be either inadequate or excessive (see table 8). A measurable amount of precipitation falls on an average of 129 days in a year. Thunderstorms occur on an average of 49 days a year, generally between the beginning of March and the end of September.

At some time in almost every year, 1.2 inches or more of rain will fall in a 1-hour period. There is a 30-percent

[6] This section was written by ALLEN B. ELAM, JR., State climatologist, U.S. Weather Bureau, Lexington, Ky.

TABLE 8.—*Temperature and precipitation data*

[All data from records at Lexington, Ky.]

Month	Temperature				Precipitation			
	Average daily maximum [1]	Average daily minimum [1]	Two years in 10 will have at least 4 days with—[2]		Average monthly total [1]	One year in 10 will have—[3]		Average number of days with 1 inch or more of snow [2]
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—	
	°F.	°F.	°F.	°F.	In.	In.	In.	
January	42.9	26.1	61	4	4.94	1.97	8.83	1
February	45.0	26.5	64	10	3.42	1.41	6.19	1
March	53.2	33.2	73	18	4.75	2.20	7.51	1
April	65.1	43.6	83	31	4.04	1.88	6.03	(4)
May	75.5	53.4	87	40	3.85	1.55	6.83	0
June	84.5	62.6	93	52	4.72	2.35	7.61	0
July	88.2	66.5	95	57	3.98	2.20	7.74	0
August	86.7	65.2	94	55	3.21	1.46	5.91	0
September	80.8	57.8	92	46	2.80	1.00	4.68	0
October	69.2	46.9	83	33	2.28	.86	3.69	0
November	54.0	35.3	70	21	3.29	1.32	5.35	1
December	44.1	27.6	61	9	3.45	1.60	6.24	1

[1] 1931–1960 standard normals.
[2] Based on data for period 1945–63.
[3] Based on data for period 1931–60.
[4] Less than 0.5 day.

chance that this will happen in July, and less than a 1-percent chance that it will happen in December, January, or February. Once in 10 years, most commonly in July, a 24-hour total of at least 4.25 inches of rain can be expected. Late-spring rainfall of lower intensity but of several days duration may make it necessary to delay tillage. Fall typically brings long periods of mild sunny weather favorable for harvesting crops.

Although the average annual snowfall at Lexington during the period 1945-1963 was 13.6 inches, there were, on the average, only 5 days a year when more than 1 inch or more of snow fell.

The average annual relative humidity at 7:00 a.m. is 83 percent; at 1:00 p.m., 59 percent; and at 7:00 p.m., 67 percent.

The prevailing wind is from the south, and the average annual velocity is 10 miles an hour.

Farming

Originally, most of Fayette County was covered with forest. The early settlers cleared land so they could build homes and plant crops. The main crops in the early days were corn, wheat, rye, tobacco, flax, hemp, pumpkins, potatoes, and beans. Now much of the land is pasture. Bluegrass, which is not native to this county, has been an important pasture grass for many years. Burley tobacco (fig. 16) is now the main cash crop. Corn, barley, and wheat are the main grain crops. Rye is grown on a few acres for early pasture. The straw from the small-grain

TABLE 9.—*Probabilities of last freezing temperature in spring and first in fall*

[All data from records at Lexington, Ky.

Probability	Dates for given probability and temperature				
	16° F. or lower	20° F. or lower	24° F. or lower	28° F. or lower	32° F. or lower
Spring:					
1 year in 10 later than	March 19	March 28	April 8	April 15	April 28
2 years in 10 later than	March 11	March 22	April 1	April 10	April 23
5 years in 10 later than	February 25	March 9	March 20	March 30	April 13
Fall:					
1 year in 10 earlier than	November 25	November 15	November 4	October 24	October 13
2 years in 10 earlier than	December 1	November 21	November 9	October 30	October 18
5 years in 10 earlier than	December 10	December 1	November 20	November 7	October 28

Figure 16.—**Harvesting burley tobacco on Maury silt loam, 2 to 6 percent slopes.**

crops is used on horse farms for bedding. Alfalfa, red clover-grass mixtures, and lespedeza are the main hay crops.

The bluegrass region is famous for high-quality livestock, especially racehorses. There are more than 400 horse farms in the county. Beef cattle (fig. 17), dairy cattle, and sheep are also raised in significant numbers.

Woodland [7]

The early settlers of Fayette County found the land covered by a vast deciduous forest interspersed with grassy glades and canebrakes. The deep soils on the uplands supported high-quality stands of hardwood trees, such as white oak, northern red oak, yellow-poplar, hickory, and black walnut. On the shallow soils on the uplands were fair- or low-quality stands of hardwoods, including black oak, white oak, scarlet oak, chestnut oak, white ash, and eastern redcedar. Many kinds of water-tolerant trees, such as pin oak, sweetgum, cottonwood, red maple, sycamore, willow, and river birch, were found in the lowlands along stream valleys.

The forests have been cleared so that crops can be grown, and at present only about 2 percent of the acreage of the county is woodland. This includes trees left in odd areas in pastures to provide shade for cattle, and low-quality trees on the rough, steep areas bordering streams and on rocky cliffs. It does not seem likely that the production of wood crops will become important in the economy of the county in the foreseeable future.

[7] This section was written by WILLIAM M. MORRILL, woodland conservationist, SCS.

Figure 17.—**In the foreground, beef cattle in Kentucky bluegrass pasture on Lanton silty clay loam; in the background, Maury silt loam.**

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Glossary

Acidity. See Reaction, soil.

Aggregate (soil structure). Many fine particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Alluvium. Fine material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity. The difference between the amount of water in a soil at field capacity and the amount in the same soil at the permanent wilting point, commonly expressed as inches of water per inch of soil depth.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Calcareous soil. A soil containing enough calcium carbonate (often with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid.

Chert. An angular fragment of rock, less than 3 inches in diameter.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: Clay coat, clay skin.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; will not hold together in a mass.

Friable.—When moist, crushes easily under gentle to moderate pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a wire when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material; tends to stretch somewhat and pull apart, rather than pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Erosion.—The wearing away of the land surface by wind, running water, and other geological agents.

Fertility, soil.—The quality that enables a soil to provide compounds, in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors, such as light, moisture, temperature, and the physical condition (tilth) of the soil, are favorable.

Flood plain. Nearly level land, consisting of stream sediment, that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A dense, brittle, subsurface horizon, very low in organic matter and clay but rich in silt or very fine sand. The layer seems to be cemented when it is dry, is hard or very hard, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick. They generally occur below the B horizon, 15 to 40 inches below the surface.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

Internal soil drainage. The downward movement of water through the soil profile. The rate of movement is determined by the texture, structure, and other characteristics of the soil profile and underlying layers, and by the depth to the water table, either permanent or perched. Relative terms for expressing internal drainage are *none, very slow, slow, medium, rapid,* and *very rapid.*

Moisture-supplying capacity. The relative capability of a soil to take in and supply moisture in amounts favorable to most plants. It is related to the amount of runoff, the rate of infiltration, the available water capacity, the depth of the root zone, the depth of the soil, and the moisture-extraction pattern. Relative terms for describing moisture-supplying capacity are high, moderately high, moderate, moderately low, low, and very low.

Morphology, soil. The makeup of the soil, including the texture, structure, consistence, color, and other physical, chemical, mineralogical, and biological properties of the various horizons that make up the soil profile.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural drainage. Moisture conditions that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free of mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods but not all the time, and in podzolic soils commonly have mottlings, below a depth of 6 to 16 inches, in the lower A horizon and in the B and C horizons

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Examples: nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil; and carbon, hydrogen, and oxygen, obtained largely from the air and water.

Organic matter. A general term for plant and animal material, in or on the soil, in all stages of decomposition.

Permeability, soil. The quality that enables water or air to move through a soil horizon. Terms used to describe permeability are as follows: *Very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material. See Horizon, soil.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction, because it is neither acid nor alkaline. In words the degrees of acidity or alkalinity are expressed thus:

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residual material. Unconsolidated, partly weathered mineral material that accumulates over disintegrating solid rock. Residual material is not soil but is frequently the material in which a soil forms.

Root zone. The part of the soil that is penetrated, or can be penetrated, by plant roots. Terms used in this survey to indicate the depth of the root zone are as follows: Very shallow, less than 10 inches; shallow, 10 to 20 inches; moderately deep, 20 to 36 inches; deep, 36 inches or more.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be of any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface soil, are similar in differentiating characteristics and in arrangement in the profile.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief, over periods of time.

Solum (plural sola). The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in a mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying parent material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips, or bands, to serve as vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal

forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer beneath the solum, or true soil; the C or R horizon.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Terrace (agricultural). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surplus runoff so that it may soak into the soil or flow slowly to a prepared outlet without causing damage. Terraces in fields are generally built so they can be farmed. Terraces intended mainly for drainage have a deep channel that is maintained in permanent sod.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. (See also clay, sand, and silt.) The basic textural classes, in order of increasing proportions of fine particles, are as follows: *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth implies friability, high noncapillary porosity, and stable granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Type, soil. A subdivision of the soil series, made on the basis of differences in the texture of the surface layer.

Upland (geological). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

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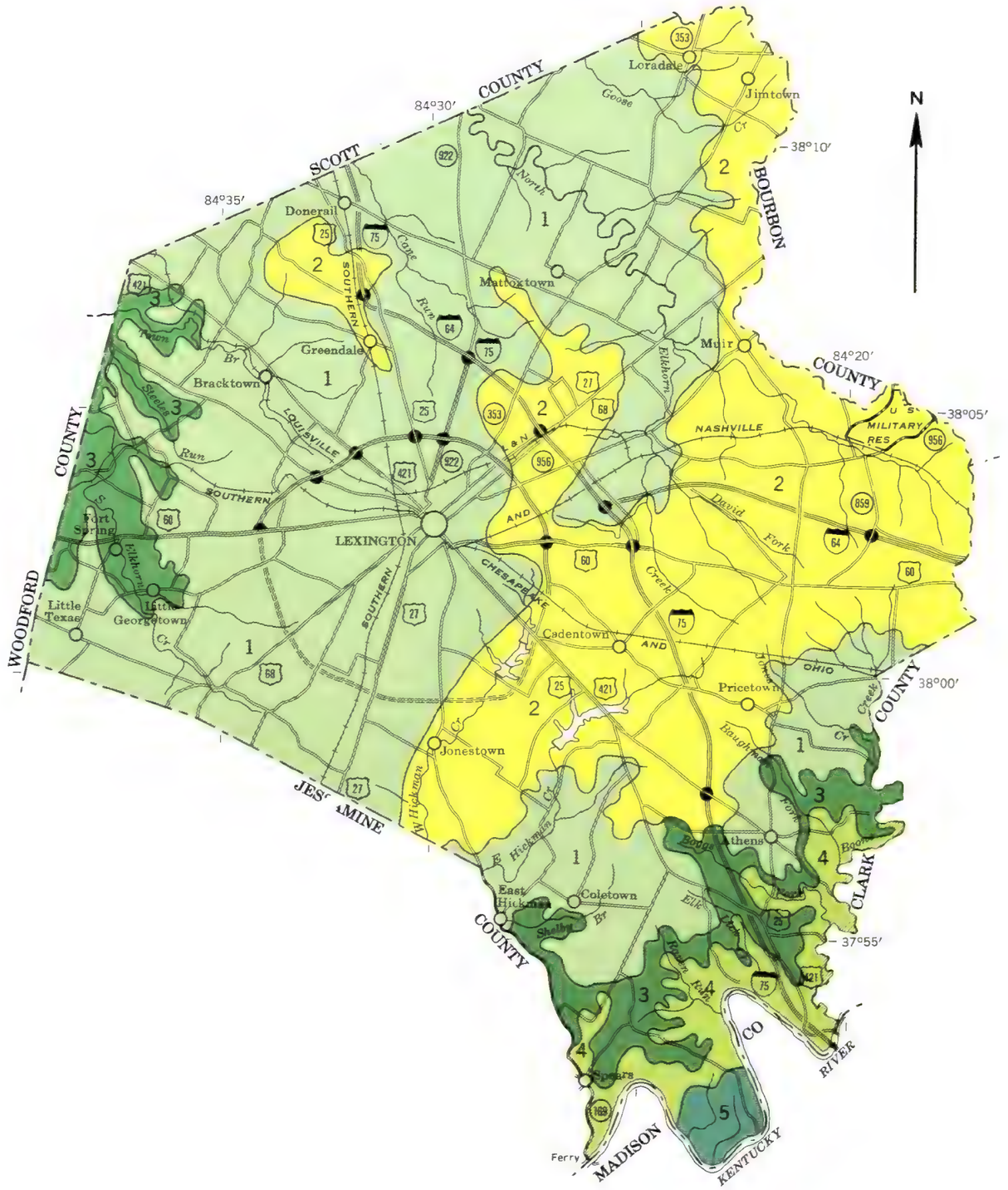


GENERAL SOIL MAP
FAYETTE COUNTY, KENTUCKY

KENTUCKY AGRICULTURAL EXPERIMENT STATION

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL ASSOCIATIONS

1 — Maury-McAfee association: Undulating, deep and moderately deep, well-drained soils high in phosphate; on uplands

2 — Lowell-Loradale-Mercer association: Gently sloping, deep and moderately deep, well drained and moderately well drained soils on uplands

3 — McAfee-Maury-Braxton association: Rolling to strongly sloping, moderately deep and deep, well-drained soils high in phosphate; on uplands

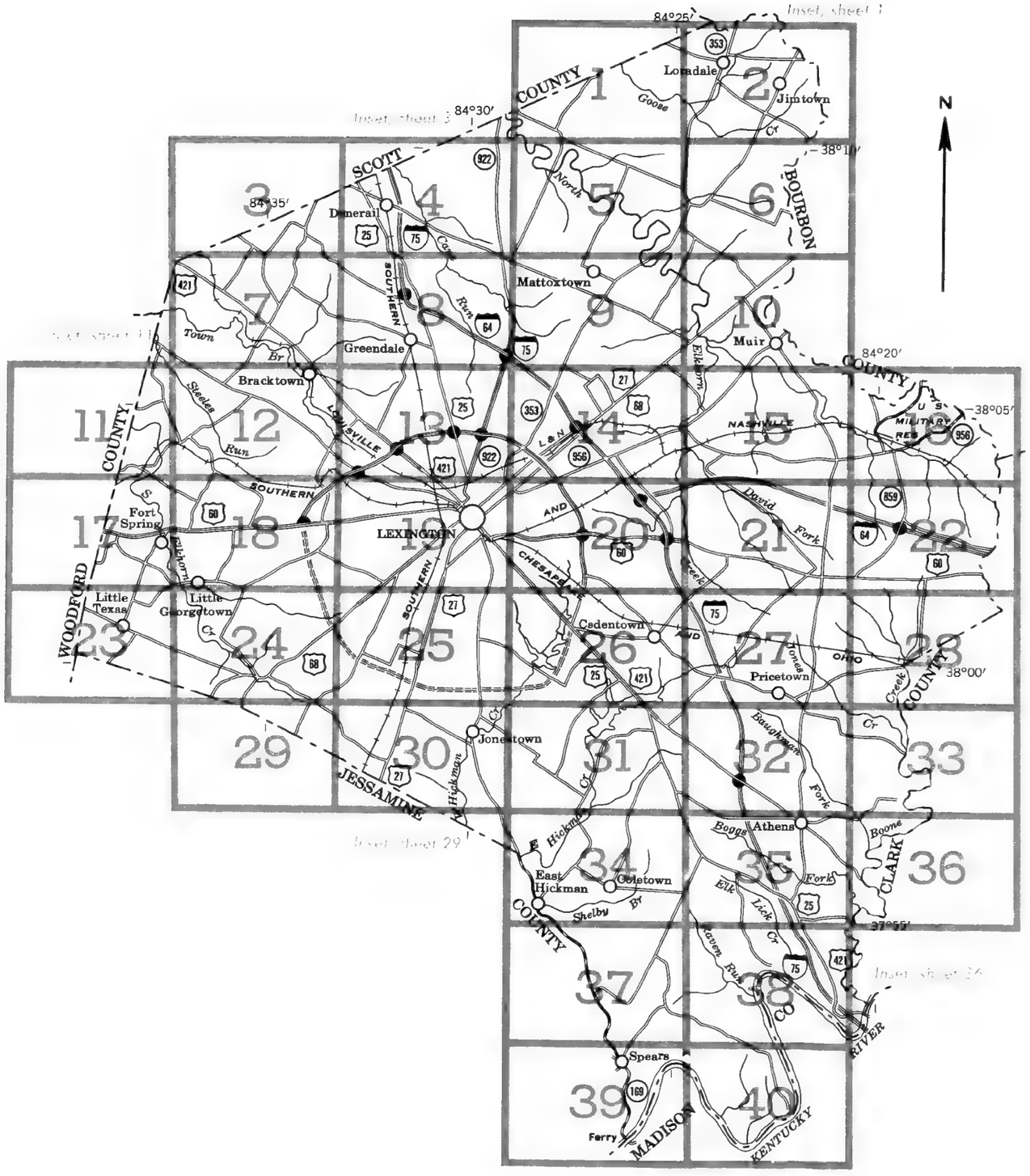
4 — Fairmount-McAfee-Rock land association: Sloping to steep, very shallow to moderately deep, clayey, rocky soils on uplands

5 — Salvisa-Culleoka association: Steep, deep to shallow, droughty soils on uplands

September 1967

SCALE IN MILES
1 0 1 2 3 4

INDEX TO MAP SHEETS
FAYETTE COUNTY, KENTUCKY



N

SCALE IN MILES

1 0 1 2 3 4

SOIL LEGEND

The first capital letter of each symbol is the first one of the soil name. A second capital letter, A, B, C, D, E, or F, shows the slope. Most symbols without a slope letter are those of nearly level soils or land types on flood plains, but some are for land types that have a considerable range in slope. The number, 2 or 3, in the symbol, shows that the soil is eroded or severely eroded.

SYMBOL	NAME
ArA	Armour silt loam, 0 to 2 percent slopes
ArB	Armour silt loam, 2 to 6 percent slopes
ArC	Armour silt loam, 6 to 12 percent slopes
BrB	Braxton silt loam, 2 to 6 percent slopes
BrC2	Braxton silt loam, 6 to 12 percent slopes, eroded
CaA	Captina silt loam, 0 to 2 percent slopes
CaB	Captina silt loam, 2 to 6 percent slopes
CfF2	Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded
CsC2	Culleoka silt loam, 6 to 12 percent slopes, eroded
DoA	Donerail silt loam, 0 to 2 percent slopes
DoB	Donerail silt loam, 2 to 6 percent slopes
DoC	Donerail silt loam, 6 to 12 percent slopes
Ea	Egam silt loam
Ec	Egam silty clay loam
FaD	Fairmount very rocky silty clay loam, 6 to 20 percent slopes
FaD3	Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded
FaF	Fairmount very rocky silty clay loam, 20 to 50 percent slopes
Hu	Huntington silt loam
La	Lanton silty clay loam
Lc	Lawrence silt loam
Ld	Lindside silt loam
LoB	Loradale silt loam, 2 to 6 percent slopes
LoC	Loradale silt loam, 6 to 12 percent slopes
LoC2	Loradale silt loam, 6 to 12 percent slopes, eroded
LpB	Loudon silt loam, phosphatic, 2 to 6 percent slopes
LpC2	Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded
LwB	Lowell silt loam, 2 to 6 percent slopes
LwC2	Lowell silt loam, 6 to 12 percent slopes, eroded
LwD2	Lowell silt loam, 12 to 20 percent slopes, eroded
LyC3	Lowell silty clay loam, 6 to 12 percent slopes, severely eroded
LyD3	Lowell silty clay loam, 12 to 20 percent slopes, severely eroded
Md	Made land, over silty materials
Me	Made land, over clayey materials
MlA	Maury silt loam, 0 to 2 percent slopes
MlB	Maury silt loam, 2 to 6 percent slopes
MlB2	Maury silt loam, 2 to 6 percent slopes, eroded
MlC	Maury silt loam, 6 to 12 percent slopes
MlC2	Maury silt loam, 6 to 12 percent slopes, eroded
MlD2	Maury silt loam, 12 to 20 percent slopes, eroded
MmC3	Maury silty clay loam, 6 to 12 percent slopes, severely eroded
MnB	McAfee silt loam, 2 to 6 percent slopes
MnC	McAfee silt loam, 6 to 12 percent slopes
MoC3	McAfee silty clay, 6 to 12 percent slopes, severely eroded
MoD3	McAfee silty clay, 12 to 20 percent slopes, severely eroded
MpB2	McAfee silty clay loam, 2 to 6 percent slopes, eroded
MpC2	McAfee silty clay loam, 6 to 12 percent slopes, eroded
MpD2	McAfee silty clay loam, 12 to 20 percent slopes, eroded
MrD2	McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded
MrE2	McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded
MsD3	McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded
Mt	Melvin silt loam
MuA	Mercer silt loam, 0 to 2 percent slopes
MuB	Mercer silt loam, 2 to 6 percent slopes
MuB2	Mercer silt loam, 2 to 6 percent slopes, eroded
MuC	Mercer silt loam, 6 to 12 percent slopes
MuC2	Mercer silt loam, 6 to 12 percent slopes, eroded
Ne	Newark silt loam
Rk	Rock land
RuB	Russellville silt loam, 2 to 6 percent slopes
RuC2	Russellville silt loam, 6 to 12 percent slopes, eroded
SaC3	Salvisa silty clay, 6 to 12 percent slopes, severely eroded
ScB2	Salvisa silty clay loam, 2 to 6 percent slopes, eroded
ScC2	Salvisa silty clay loam, 6 to 12 percent slopes, eroded
ScE2	Salvisa silty clay loam, 12 to 30 percent slopes, eroded
Ua	Urban land—Armour—Maury complex
Um	Urban land—Loradale—Mercer complex

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Divided
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State or county

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail
- Railroad
- Ferry (Fy)
- Ford (Ford)
- Grade
- R. R. over
- R. R. under
- Tunnel (Tunnel)

Buildings
- School
- Church

Mines and Quarries

Pits, gravel or other

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

BOUNDARIES

- National or state
- County
- Smal park, cemetery, airport
- Land grant
- Reservation

DRAINAGE

Streams, double-line
- Perennial
- Interm.ttent

Streams, single-line
- Perennia
- Intermittent
- Crossable with tillage implements
- Not crossable with tillage implements
- Unclassified

Canals and ditches (CANAL)

Lakes and ponds
- Perennial (Water, W)
- Intermittent

Wells, water (flowing)

Spring

Marsh or swamp

Wet spot

Alluvial fan

Drainage end

RELIEF

Escarpments
- Bedrock
- Other

Prominent peak

Depressions and sinkholes
- Unclassified (Large, Small)

SOIL SURVEY DATA

- Soil boundary and symbol (Dx)
- Gravel
- Stony, very stony
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gully

Soil map constructed 1966 by Cartographic Division, Soil Conservation Service, USDA, from 1960 and 1965 aerial photographs. Controlled mosaic based on Kentucky plane coordinate system, north zone, Lambert conformal conic projection, 1927 North American datum.

GUIDE TO MAPPING UNITS

[For a full description of a mapping unit, read both the description of the mapping unit and the description of the soil series to which the mapping unit belongs.

[See table 1, page 7, for the approximate acreage and proportionate extent of the soils; see table 2, page 27, for estimated yields. See table 4, page 34, and table 5, page 38, for information about the engineering properties and engineering uses of the soils]

Map symbol	Mapping unit	Described on page	Capability unit	
			Symbol	Page
ArA	Armour silt loam, 0 to 2 percent slopes	6	I-3	20
ArB	Armour silt loam, 2 to 6 percent slopes	7	IIe-1	20
ArC	Armour silt loam, 6 to 12 percent slopes	7	IIIe-1	22
BrB	Braxton silt loam, 2 to 6 percent slopes	8	IIe-2	21
BrC2	Braxton silt loam, 6 to 12 percent slopes, eroded	8	IIIe-2	22
CaA	Captina silt loam, 0 to 2 percent slopes	8	IIw-1	21
CaB	Captina silt loam, 2 to 6 percent slopes	8	IIe-6	21
CfF2	Culleoka flaggy silt loam, 30 to 50 percent slopes, eroded	9	VIIe-1	26
CsC2	Culleoka silt loam, 6 to 12 percent slopes, eroded	9	IIIe-1	22
DoA	Donerail silt loam, 0 to 2 percent slopes	9	IIw-1	21
DoB	Donerail silt loam, 2 to 6 percent slopes	9	IIe-6	21
DoC	Donerail silt loam, 6 to 12 percent slopes	9	IIIe-8	23
Ea	Egam silt loam	10	I-1	20
Ec	Egam silty clay loam	10	IIs-3	22
FaD	Fairmount very rocky silty clay loam, 6 to 20 percent slopes	10	VIs-1	26
FaD3	Fairmount very rocky silty clay loam, 10 to 30 percent slopes, severely eroded	10	VIIs-2	26
FaF	Fairmount very rocky silty clay loam, 20 to 50 percent slopes	10	VIIs-2	26
Hu	Huntington silt loam	10	I-1	20
La	Lanton silty clay loam	11	IIIw-7	24
Lc	Lawrence silt loam	11	IIIw-1	23
Ld	Lindside silt loam	11	I-1	20
LoB	Loradale silt loam, 2 to 6 percent slopes	12	IIe-2	21
LoC	Loradale silt loam, 6 to 12 percent slopes	12	IIIe-2	22
LoC2	Loradale silt loam, 6 to 12 percent slopes, eroded	12	IIIe-2	22
LpB	Loudon silt loam, phosphatic, 2 to 6 percent slopes	12	IIIw-1	23
LpC2	Loudon silt loam, phosphatic, 6 to 12 percent slopes, eroded	12	IIIe-8	23
LwB	Lowell silt loam, 2 to 6 percent slopes	12	IIe-2	21
LwC2	Lowell silt loam, 6 to 12 percent slopes, eroded	12	IIIe-2	22
LwD2	Lowell silt loam, 12 to 20 percent slopes, eroded	13	IVe-3	24
LyC3	Lowell silty clay loam, 6 to 12 percent slopes, severely eroded	13	IVe-11	25
LyD3	Lowell silty clay loam, 12 to 20 percent slopes, severely eroded	13	VIe-1	25
Md	Made land, over silty materials	13	-----	--
Me	Made land, over clayey materials	13	-----	--
M1A	Maury silt loam, 0 to 2 percent slopes	14	I-3	20
M1B	Maury silt loam, 2 to 6 percent slopes	14	IIe-1	20
M1B2	Maury silt loam, 2 to 6 percent slopes, eroded	14	IIe-1	20
M1C	Maury silt loam, 6 to 12 percent slopes	14	IIIe-1	22
M1C2	Maury silt loam, 6 to 12 percent slopes, eroded	14	IIIe-1	22
M1D2	Maury silt loam, 12 to 20 percent slopes, eroded	14	IVe-1	24
MmC3	Maury silty clay loam, 6 to 12 percent slopes, severely eroded	14	IVe-9	25
MnB	McAfee silt loam, 2 to 6 percent slopes	14	IIIe-10	23
MnC	McAfee silt loam, 6 to 12 percent slopes	15	IVe-6	24
MoC3	McAfee silty clay, 6 to 12 percent slopes, severely eroded	15	VIe-4	25
MoD3	McAfee silty clay, 12 to 20 percent slopes, severely eroded	15	VIe-4	25
MpB2	McAfee silty clay loam, 2 to 6 percent slopes, eroded	15	IIIe-10	23
MpC2	McAfee silty clay loam, 6 to 12 percent slopes, eroded	15	IVe-6	24
MpD2	McAfee silty clay loam, 12 to 20 percent slopes, eroded	15	VIe-1	25
MrD2	McAfee very rocky silty clay loam, 6 to 20 percent slopes, eroded	15	VIs-1	26
MrE2	McAfee very rocky silty clay loam, 20 to 30 percent slopes, eroded	15	VIIs-2	26
MsD3	McAfee very rocky silty clay, 12 to 20 percent slopes, severely eroded	16	VIIs-2	26
Mt	Melvin silt loam	16	IIIw-5	23
MuA	Mercer silt loam, 0 to 2 percent slopes	16	IIw-1	21
MuB	Mercer silt loam, 2 to 6 percent slopes	16	IIe-6	21
MuB2	Mercer silt loam, 2 to 6 percent slopes, eroded	16	IIe-6	21
MuC	Mercer silt loam, 6 to 12 percent slopes	16	IIIe-8	23
MuC2	Mercer silt loam, 6 to 12 percent slopes, eroded	16	IIIe-8	23
Ne	Newark silt loam	17	IIw-4	22
Rk	Rock land	17	VIIs-2	26
RuB	Russellville silt loam, 2 to 6 percent slopes	17	IIe-2	21
RuC2	Russellville silt loam, 6 to 12 percent slopes, eroded	17	IIIe-2	22
SaC3	Salvisa silty clay, 6 to 12 percent slopes, severely eroded	18	VIe-4	25
ScB2	Salvisa silty clay loam, 2 to 6 percent slopes, eroded	18	IIIe-10	23
ScC2	Salvisa silty clay loam, 6 to 12 percent slopes, eroded	18	IVe-6	24
ScE2	Salvisa silty clay loam, 12 to 30 percent slopes, eroded	18	VIe-1	25
Ua	Urban land-Armour-Maury complex	18	-----	--
Um	Urban land-Loradale-Mercer complex	18	-----	--

249-052 O-68 (Face Soil Maps)

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

1

N

SCOTT CO

BOURBON COUNTY

(Joins sheet 2)

(Joins sheet 2)

(Joins inset, sheet 3)

(Joins sheet 5)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

(2)

(Joins inset, sheet 1)

N

(Joins sheet 1)

(Joins sheet 6)

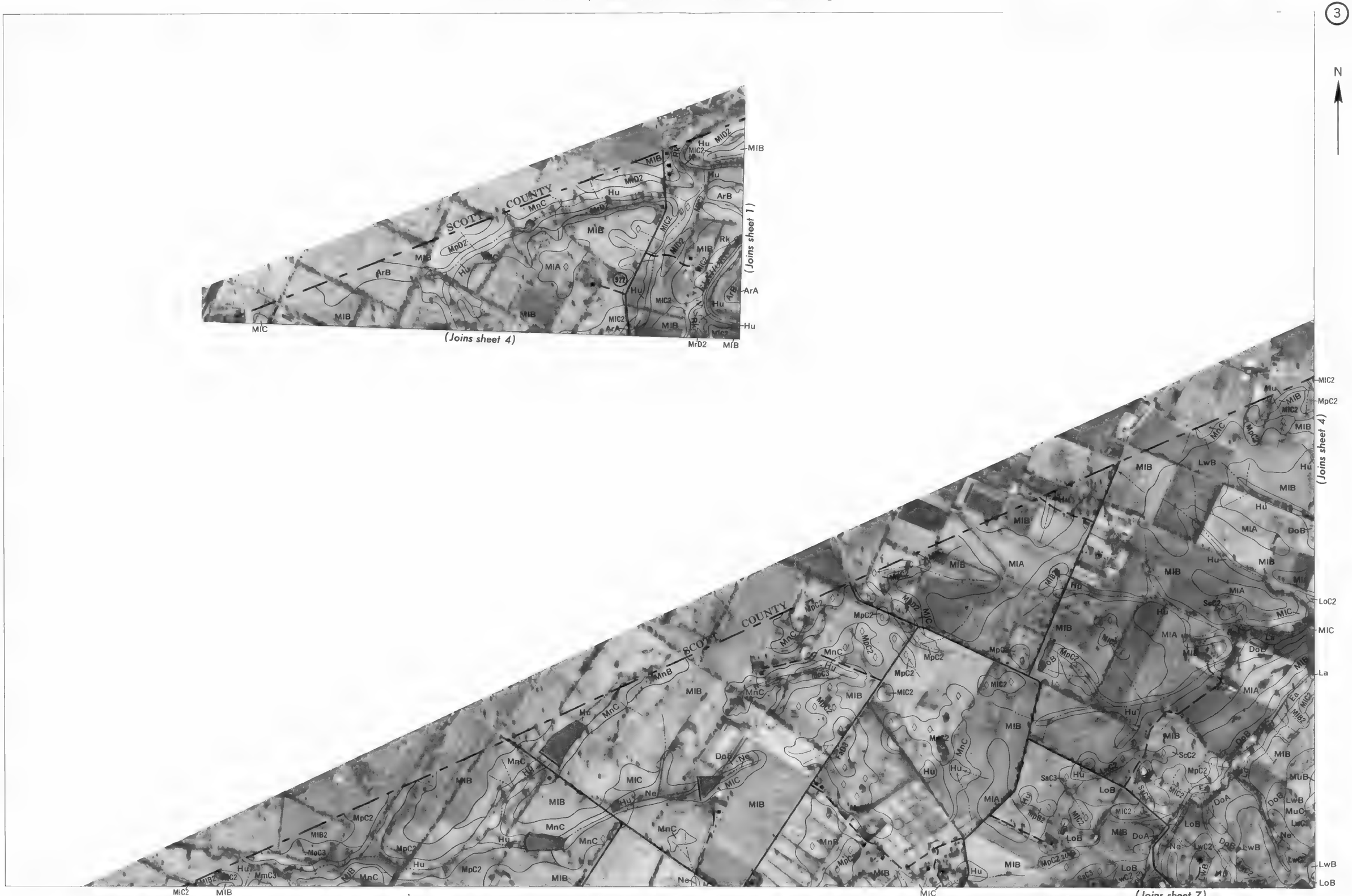
0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 2

FAYETTE COUNTY, KENTUCKY NO. 3



4

N

(Joins inset, sheet 3)

(Joins sheet 3)

(Joins sheet 5)

(Joins sheet 8)

SCOTT COUNTY

Donerail

Cane Run Church

Berea Church

SOUTHERN

Cane Run

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 5

(Joins sheet 1)

5

N

(Joins sheet 4)

(Joins sheet 6)

(Joins sheet 9)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture and the Kentucky Agricultural Experiment Station

FAYETTE COUNTY, KENTUCKY NO. 5

6

N

(Joins sheet 2)

(Joins sheet 5)

(Joins sheet 10)

BOURBON COUNTY

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1957 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station
FAYETTE COUNTY, KENTUCKY NO. 7

(Joins inset, sheet 11)
(Joins sheet 3)
(Joins sheet 8)
(Joins sheet 12)

7

N

SCOTT COUNTY

Bethel Church

Yarnallton

UNITED PUBLIC HEALTH HOSPITAL

Louisville and Nashville R.R.

Dixie Highway

421

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

N

(Joins sheet 4)

(Joins sheet 7)

(Joins sheet 9)

(Joins sheet 13)

KENTUCKY VILLAGE

Greendale

Springtop

LIMESTONE QUARRY

SOUTHERN Rd

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 9

9

N

(Joins sheet 5)

(Joins sheet 8)

(Joins sheet 10)

(Joins sheet 14)

Mt Moreb Church

Russell Cave

Russell Cave School

ELKHORN CREEK

Scale 1:15840

0 1/2 1 Mile

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station.

FAYETTE COUNTY, KENTUCKY NO. 9

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 10

10

(Joins sheet 6)

(Joins sheet 9)

(Joins sheet 15)

N

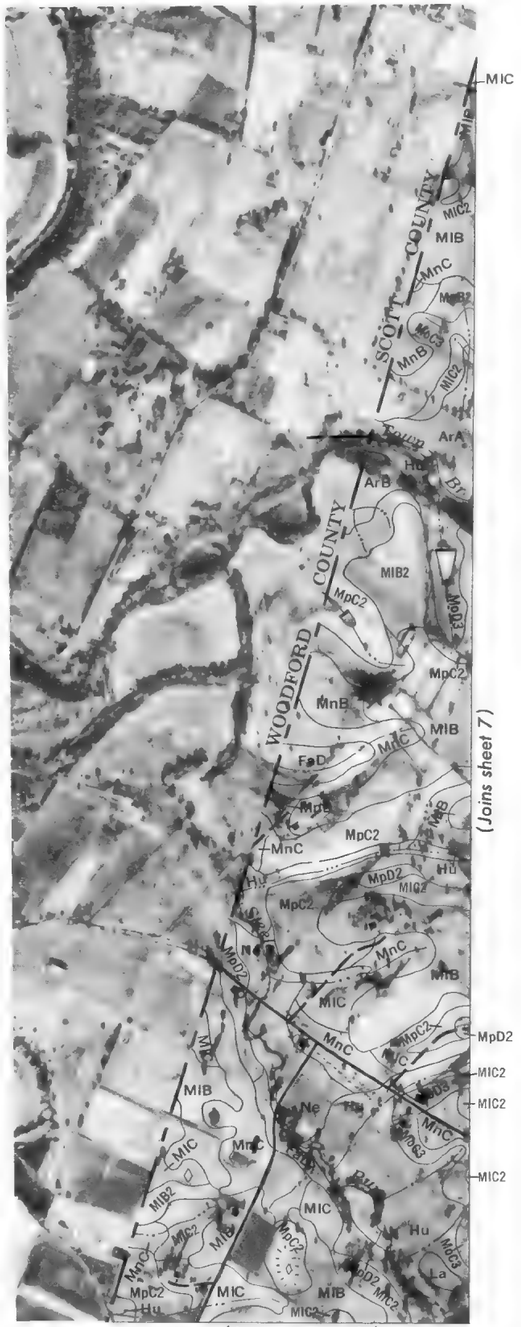
BOURBON COUNTY

Scale 1:15840

0 1/2 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.10



N

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

12

(Joins sheet 7)

N

(Joins sheet 11)

(Joins sheet 13)

(Joins sheet 18)

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 13

(Joins sheet 8) w

13

N

(Joins sheet 12)

(Joins sheet 14)

(Joins sheet 19)

Sandersville

BOILING SPRINGS GOLF COURSE

MEADOWTHORPE

LEXINGTON
(county seat)

HIGHLAND CEMETERY

GREENWOOD CEMETERY

LEXINGTON CEMETERY

Douglass School

Eastown School

U.S. VETERANS HOSPITAL

25 421 BYPASS

DETAILED SOIL SURVEY

LIMIT OF DETAILED SOIL SURVEY

0 1/2 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 13

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

14

(Joins sheet 9)

N

(Joins sheet 13)

(Joins sheet 15)

(Joins sheet 20)

Thoroughbred Acres

Todd School

SWING'S COUNTRY CLUB

Bryan Station School

Waterfown

Hi-Acres

Bryan Station Spring

Cane Run

Elkhorn Creek

LIMIT OF DETAILED SOIL SURVEY

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.14

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 15

15

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

16

N

(Joins sheet 15)

(Joins sheet 22)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 17

(Joins sheet 11)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 17

18


MpC2 (Joins sheet 12)
LwB MpC2 MrD2
N
KEENELAND RACE COURSE
BLUEGRASS FIELD
Little Georgetown
(Joins sheet 17)
(Joins sheet 19)
Hu
Ne
(Joins sheet 24)
MpC2
0
½
1 Mile
Scale 1:15840
0
5000 Feet

(Joins sheet 13)
(Joins sheet 18)
(Joins sheet 20)
(Joins sheet 25)

19

N

LEXINGTON CEMETERY
CALVARY CEMETERY
LIMESTONE QUARRY
LIMIT OF DETAILED SOIL SURVEY
Transylvania University
HILLCREST MEMORIAL CEMETERY
Traudtown
Gardenside
James Lane Allen School
GOLF COURSE
Picadome School
Lafayette School
TROTTING TRACK
Constitution School
LEXINGTON (county seat)
University of Kentucky
Henry Clay School
CHEVY CHASE
UNIVERSITY OF KENTUCKY EXPERIMENTAL FARM
Sussidy School

0 ½ 1 Mile
Scale 1:15840
0 5000 Feet

20

N

(Joins sheet 14)

(Joins sheet 19)

(Joins sheet 21)

(Joins sheet 26)

LEXINGTON
County Seat

Lexington School

Ramsey School

IDLE HOUR COUNTRY CLUB

Idle Hour

CHESAPEAKE

DETROIT

OHIO

BYPASS

Scale 1:15840

1/4 0 1/4 1/2 1 Mile

0 1000 2000 3000 4000 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 21

(Joins sheet 15)

21

N

(Joins sheet 20)

(Joins sheet 22)

(Joins sheet 27)

Uttingertown

Columbus

David Fork Church

Macedonia Church

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 21

This map, one of a set compiled in 1967 as part of a soil survey of the Fayette and Jessamine County Area, Kentucky, is published by the United States Department of Agriculture and the Kentucky Agricultural Experiment Station

22

(Joins sheet 16)

N

(Joins sheet 21)

(Joins sheet 28)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.22

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station
FAYETTE COUNTY, KENTUCKY NO. 23

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

24

(Joins sheet 18)

N

(Joins sheet 23)

(Joins sheet 25)

(Joins sheet 29)

JESSAMINE COUNTY

South Elkhorn

Stonewall Estates

PROPOSED

Elkhorn Creek

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

(Joins sheet 19)

25

(Joins sheet 24)

(Joins sheet 26)

(Joins sheet 30)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 25

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

26

(Joins sheet 20)

N

LEXINGTON
(County Seat)

Idle Hour

Reservoir No 1

Reservoir No 2

Reservoir No 3

Lexington Reservoir No 4

Brighton

Cadentown

CHESAPEAKE & OHIO

Walker

(Joins sheet 25)

(Joins sheet 27)

(Joins sheet 31)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.26

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 27

(27)

N

(Joins sheet 21)

(Joins sheet 26)

(Joins sheet 28)

(Joins sheet 32)

Chilesburg

Pricetown

Whitemore

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 27

This map is one of a set completed in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 28

28

(Joins sheet 22)

(Joins sheet 27)

(Joins sheet 33)

N

COUNTY

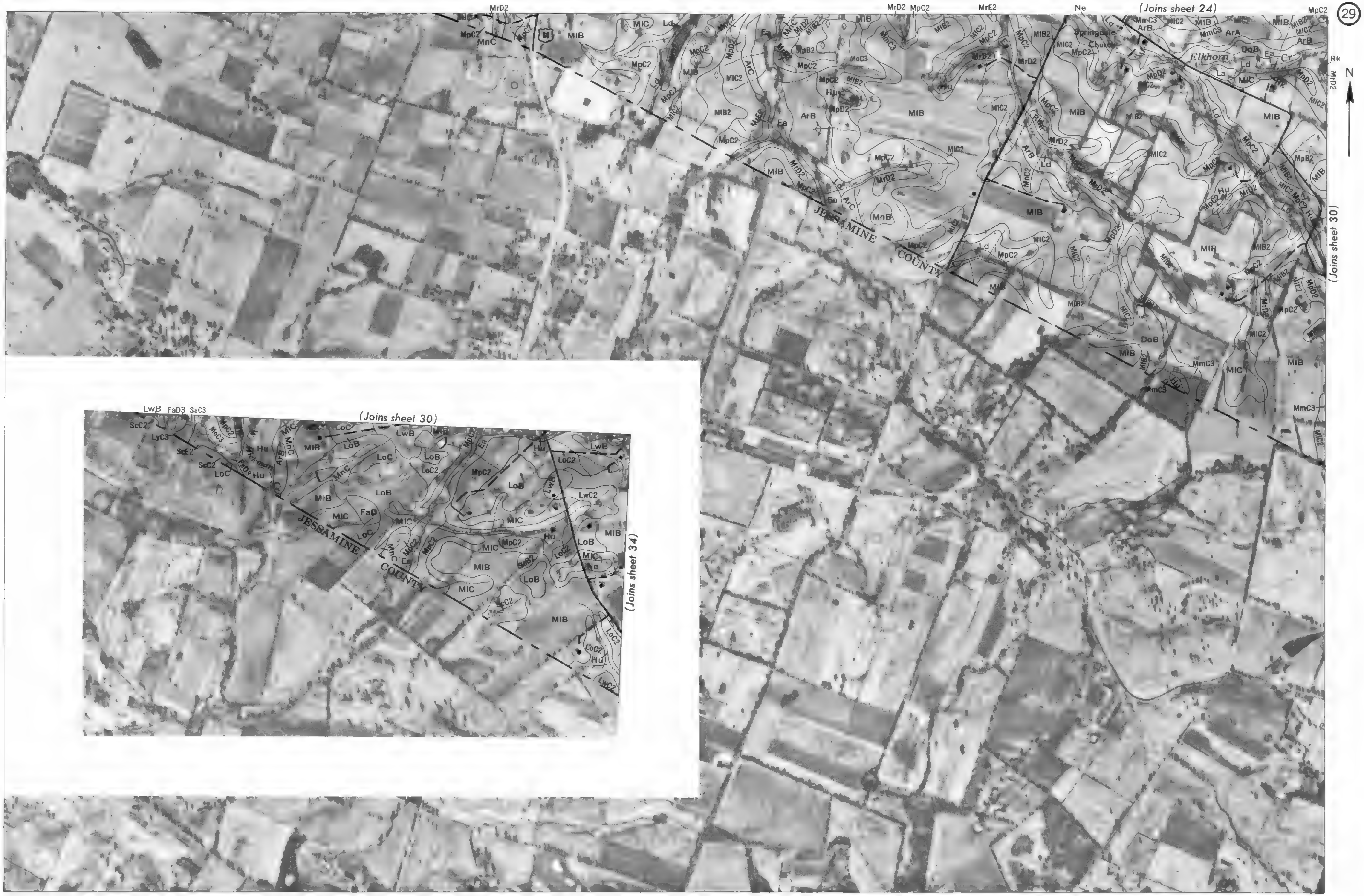
CLARK

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.28



0 ½ 1 Mile Scale 1:15840 0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

30

FAYETTE COUNTY, KENTUCKY NO.30

(Joins sheet 26)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 34)

32

N

(Joins sheet 27)

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 35)

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 32

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 33

(33)

N

(Joins sheet 28)

(Joins sheet 32)

(Joins sheet 36)

CLARK COUNTY

Jones Creek

Boone Creek

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 33

34

N

(Joins inset, sheet 29)

(Joins sheet 31)

(Joins sheet 35)

(Joins sheet 37)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.34

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 35

35

N

(Joins sheet 32)

(Joins sheet 34)

(Joins sheet 36)

(Joins sheet 38)

Athens

Bentley Memorial Church

Boggs Fork

Scale 1:15840

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled - 1967 - as part of a survey by the Soil Conservation Service, United States Department of Agriculture, and the Kentucky Agricultural Experiment Station

FAYETTE COUNTY, KENTUCKY NO. 35

36

(Joins sheet 33)

(Joins lower left)

(Joins sheet 35)

(Joins sheet 38)

(Joins upper right)

N

Boone Creek

CLARK COUNTY

BLUE GRASS ASSEMBLY

Fork

Bobbs

MADISON COUNTY

KENTUCKY RIVER

Cleveland

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 37

(Joins sheet 34)

37

N

(Joins sheet 38)

JESSAMINE COUNTY

(Joins sheet 39)

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO. 37

FAYETTE COUNTY, KENTUCKY — SHEET NUMBER 38

38

N

(Joins sheet 35)

(Joins sheet 37)

(Joins sheet 40)

(Joins inset, sheet 36)

KENTUCKY RIVER

MADISON COUNTY

CLARK CO

LIMESTONE QUARRY

Boone Cr

Boone Creek

Rawen Run

Lick Creek

Filtration Plant

Cleveland

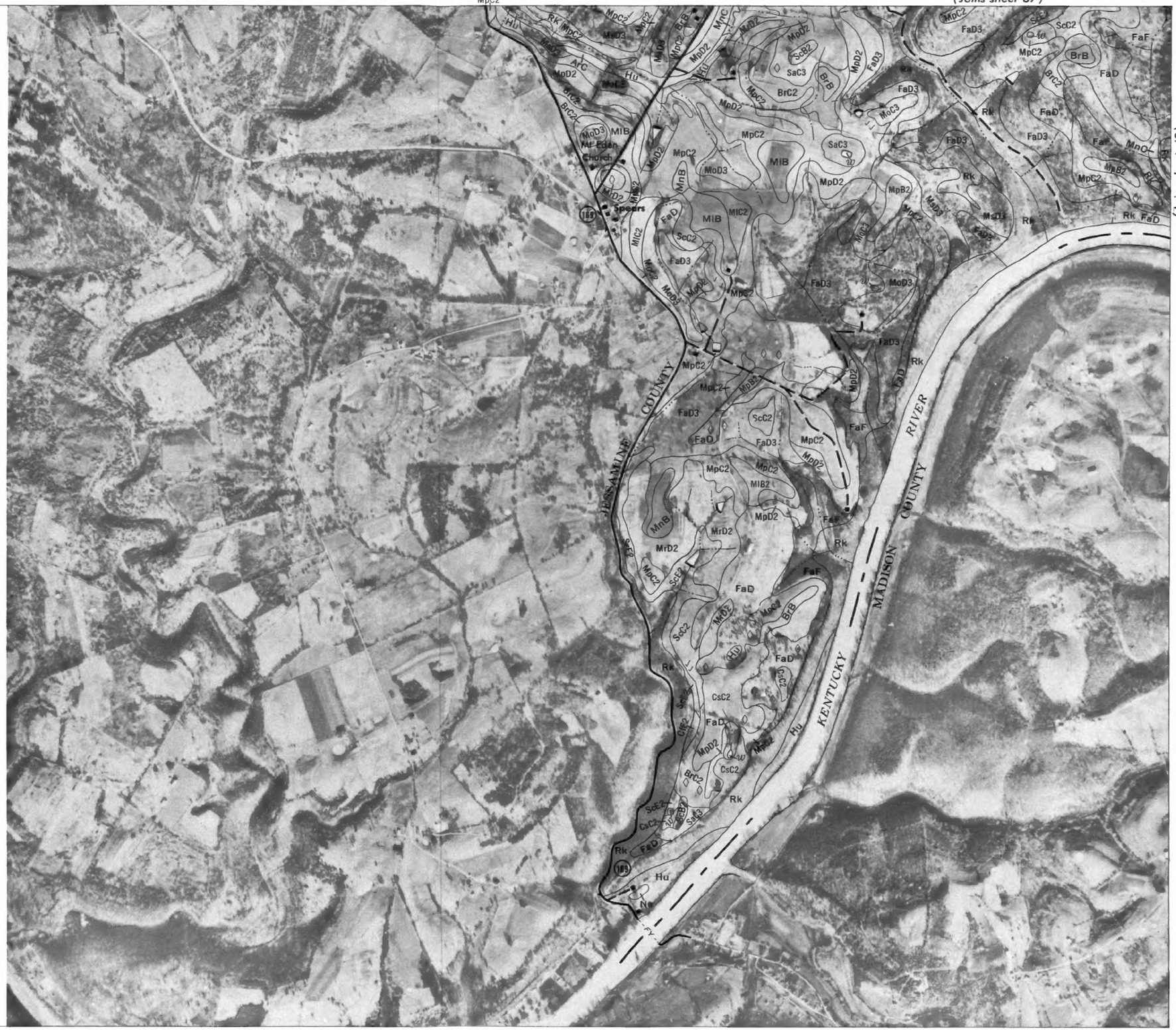
ScE2 0 ½ 1 Mile Scale 1:15840 0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.38

(Joins sheet 37)

(Joins sheet 40)

N



0 ½ 1 Mile Scale 1:15840 0 5000 Feet

(40)

(Joins sheet 38)

(Joins sheet 39)

N

MADISON COUNTY

KENTUCKY RIVER

0 ½ 1 Mile

Scale 1:15840

0 5000 Feet

FAYETTE COUNTY, KENTUCKY NO.40